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ABSTRACT

The U.S. Department of Education developed the Gender Equity Expert Panel to identify promising and exemplary programs that promote gender equity in and through education. This panel of experts reviewed self-nominated programs to determine whether they met four criteria: evidence of success/effectiveness in promoting gender equity; quality of the program; educational significance; and usefulness to others/replicability. Submitted for review during the review cycle from 1996-99 were 100 gender equity products, programs, and policies. Eleven exemplary and promising programs are recommended here. The updated reviews in this report provide descriptive and evaluative information on the 11 programs, one recommended as exemplary and 10 as promising. The 11 summary reviews in the report are grouped into four topics areas that generally correspond to expert subpanels: gender equity in vocational/technical education and school-to-work; gender equity in mathematics, science, and technology; prevention of violence and sexual and racial harassment in higher education; and gender equity in teacher education and professional development. (BT)

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The U.S. Department of Education's

GENDER EQUITY EXPERT PANEL

Exemplary & Promising Gender Equity Programs

2000

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U.S. DEPARTMENT OF EDUCATION'S

GENDER EQUITY EXPERT PANEL

Exemplary & Promising Gender Equity Programs 2000

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For further information about the U.S. Department of Education's Expert Panel System, please visit the Panel's Web Site at ED.gov; Go to "Expert Panels" under the topic index or http://www.ed.gov/offices/OERI/ORAD/KAD/expert_panel

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Introduction

The U.S. Department of Education developed the Gender Equity Expert Panel to identify promising and exemplary programs that promote gender equity in and through education. This panel of experts reviewed self-nominated programs to determine whether they met four criteria:

- *evidence of success/effectiveness in promoting gender equity;*
- *quality of the program;*
- *educational significance; and*
- *usefulness to others/replicability.*

The 11 exemplary and promising programs that the Panel recommended during the review cycle from 1996–99 are a sample of many currently available solutions.

The Expert Panel System

The Gender Equity Expert Panel is one of the four expert panels established to implement provisions in the 1994 reauthorization of the Office of Educational Research and Improvement (OERI). The provisions direct OERI to establish "panels of appropriate qualified experts and practitioners" to evaluate educational programs and recommend to the Secretary those programs that should be designated as promising or exemplary. The other expert panels are on

- **Mathematics and Science Education;**
- **Educational Technology; and**
- **Safe, Disciplined, and Drug-Free Schools**

The Gender Equity Expert Panel Review Process

Planning for the Gender Equity Expert Panel started in 1995, with the first Panel members selected in 1996. The 34 Panel members who eventually served had expertise in a wide variety of gender equity topics and represented diverse education roles and populations.

The Gender Equity Expert Panel formed six subpanels in the following areas:

- *Core Gender Equity*
- *Disabilities*
- *Mathematics, Science, and Technology*
- *Prevention of Violence and Sexual and Racial Harassment in Higher Education*
- *Teacher Education and Professional Development*
- *Vocational/Technical Education and School-to-Work*

The initial submission guidelines issued in September 1996 covered all the subpanels. Separate submission guidelines were issued in the spring of 1998 for the subpanel on the Prevention of Violence and Sexual and Racial Harassment in Higher Education. The 1998 guidelines limited submissions to programs focusing on higher education, since the funding for this subpanel came from a Safe and Drug-Free Schools contract with The Higher Education Center for Alcohol and Other Drug Prevention.

One-hundred gender equity products, programs, and policies were submitted for review. The initial reviewers were either subpanel members or individuals recruited by the subpanel chairs for their special expertise in areas covered by the submission. Most of the reviews were conducted by mail, although two subpanels held meetings to discuss the initial judgments prior to developing the summary reviews.

Each complete submission to the panel was reviewed by at least two subpanel reviewers. The reviewers were responsible for judging the four criteria listed earlier. In 1997, OERI formed an Impact Review Panel (IRP) to examine evidence of effectiveness for all programs that the panels were considering recommending as exemplary. Members of the IRP reviewed the appropriate submissions to the Gender Equity Panel and sent the results of their deliberations to the full Panel for consideration.

After the initial reviews were completed, the subpanel chairs worked with reviewers to prepare a summary review document describing the program and its strengths and weaknesses in relation to the evaluation criteria.

The Panel made iterative decisions at two key meetings. First, the full Panel met in September 1997, and made initial decisions about its first group of potentially promising and exemplary programs. Second, approximately 20 representatives from all the subpanels met in December 1998, and discussed subpanel recommendations to make sure that all the criteria and decision rules were applied consistently across subpanels. During this meeting, they also considered the comments from the IRP about the strength of the evidence to support claims of positive impact for programs the subpanels judged potentially exemplary.

The updated reviews in this report provide descriptive and evaluative information on the 11 programs, one that was recommended as Exemplary and 10 that the panel recommended as Promising. The subcriteria the reviewers used to guide their descriptions of the strengths and weaknesses under each of the four criteria are described in the next section of this report under "Evaluation Criteria."

To be rated as Exemplary, the program had to receive "excellent" ratings on each of the four criteria categories. Promising programs had to receive ratings of at least "good" on each category. Most received "excellent" on all categories except for *evidence of effectiveness*.

To receive an "excellent" rating on *evidence of effectiveness*, there had to be very convincing evidence from multiple sites that the intervention was a major contributor to one or more important gender equity claims of positive impact without substantial counter-evidence of negative impact on gender equity, or other important results in other sites. To receive a "good" rating on *evidence of effectiveness*, the intervention must demonstrate at least one important and meaningful positive gender equity claim that is supported by some relational evidence in one or more sites. As with exemplary status, there could be no substantial counter-evidence that it had a negative impact on gender equity or other important results.

How To Use This Report

The 11 Exemplary and Promising programs recommended in this round of reviews by the Gender Equity Expert Panel are an important set of resources for educators and other community leaders who want to use programs that have evidence that they can increase gender equity.

The 11 summary reviews are grouped into 4 topic areas that generally correspond to the subpanels:

- Gender equity in vocational/technical education and school-to-work;
- Gender equity in mathematics, science, and technology;
- Prevention of violence and sexual and racial harassment in higher education; and
- Gender equity in teacher education and professional development.

When educators seek resources that are likely to assist them in advancing gender equity in their situations, the Panel hopes that educators will find summaries of these promising and exemplary programs helpful. Additional information on the Gender Equity Expert Panel and the System of Expert Panels may be found on the U.S. Department of Education's Web Site: www.ed.gov under "Expert Panels" in the home page topic index.

Evaluation Criteria

The following four criteria categories and subcriteria indicators were used by the Gender Equity Expert Panel and the additional reviewers as they examined the submissions. The criteria were detailed in their 1996 and 1998 submission guidelines. Items with * were added to the 1998 submission guidelines from the Subpanel on the Prevention of Violence and Sexual and Racial Harassment in Higher Education. The Panel established decision rules to help make consistent judgments about how each program met the criteria and to distinguish between promising and exemplary recommendations.

Evidence of Success/Effectiveness in Promoting Gender Equity

- Evidence to support claims of increasing gender equity in at least one site (more than one site is needed for exemplary).
- Claims that the program is beneficial for males and/or females, and multiple racial/ethnic or disability users should be supported by disaggregated evidence.
- Evidence on the success (or failures) of the program should be presented for multiple sites and/or populations, so that potential users will be able to judge appropriateness for their own contexts.
- Evidence that the program is as good as, or better than, other gender equity programs.
- *Specific claims related to the prevention of sexual and racial harassment and violence against students may be predisposing, enabling, or reinforcing factors, as well as educational, public health, or criminal justice outcomes.

Quality of the Program

- Based on sound research and practice (*sound theory and practice and considers current consensus on how to address issues).
- Information and content accuracy, and currency.
- Advantages related to other alternatives or complementary to other programs.
- Promotion of equity in relation to civil rights laws, freedom from bias and stereotyping, and fostering of high expectations for all in relationship to: sex, race, ethnicity, disability, age, culture, ethnic origin, and limited-English proficiency status.
- Appropriate, engaging, and motivating for intended audiences.
- Technical quality and compatibility, durability of materials, and use of formats accessible to students with disabilities (*well organized and written).

Educational Significance

- Program focuses on solving or alleviating significant educational barriers to gender equity (draws strategies from diverse fields, such as health and justice).
- Program addresses federal gender equity responsibilities.
- *Is an improvement over alternative approaches to the challenge.
- Contributes to other positive by-products, such as increasing knowledge or improving strategies for teaching and learning.

Usefulness to Others/Replicability

- Reasonableness in terms of costs to potential users, especially related to costs for other viable alternatives. Costs may include money, staff time, or other required resources.
- Easily available to other users (*well detailed implementation procedures, avoidance of restrictions that would hamper use by others).
- *Ease of use by students with disabilities or others with limited-English skills, and so forth.
- For Exemplary, the Panel later added: use in multiple sites and/or over time without the direct instructional involvement of the original developer.

Gender Equity in Vocational/Technical Education and School-to-Work

Summary Review of Exemplary Program

EXEMPLARY

Orientation to Nontraditional Occupations for Women (ONOW) Program

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Program Description

The ONOW Program was designed to assist socioeconomically disadvantaged women to explore and successfully enter high-wage careers in nontraditional fields in which they have been underrepresented, such as skilled construction (e.g., welding, carpentry), manufacturing (e.g., machine trades, production technician), transportation (e.g., automotive technology, truck driving, delivery), protective services (e.g., emergency medical services, firefighters, highway patrol), and high-tech (e.g., Web design, drafting). Participants attended 8-week training sessions, in which they received hands-on experience using applied math and science, and working with hand and power tools. The program also addressed concerns of physical fitness, employability skills, and self-esteem. Between 45 and 75 women were served at each program site per year. The program tried to obtain high completion rates, and to assist those who finish with placement in job training programs, apprenticeships, or employment. Job placements were expected to pay at least $8 per hour within 6 months of the start date. First implemented in 1987, by FY '98 the ONOW program was operating at 12 sites in Ohio—9 at vocational schools or community colleges and 3 at correctional facilities.

The purpose of the program was to help participants overcome multiple barriers and become economically self-sufficient. It also sought to increase the numbers of women enrolled in nontraditional vocational education programs, to decrease the numbers of women on welfare in Ohio, and to reduce the recidivism rate of women offenders.

Program guidelines require that each coordinator participate in training designed to reduce/eliminate bias and increase sensitivity to diversity. Training sessions addressed topics such as Gender/Ethnic Expectations, Student Achievement (GESA), cultural diversity issues, and how to work with students with multiple barriers. Support for matters of equity and diversity is a clear expectation for all coordinators.

Target Populations

The program was designed to target adult women with an emphasis on the socioeconomically disadvantaged. Participants included incarcerated women (generally within a few years of

release from correctional institutions) and those who were completing short sentences in county jails. Incarcerated women and women on welfare who participated in the ONOW programs did so voluntarily. Those interested in replicating the ONOW program must ensure that it is operated consistently with Title IX of the Education Amendments of 1972, which prohibits sex-based discrimination in education programs receiving federal financial assistance, and with the Title IX regulation 34 CFR Part 106.34 (access to course offerings) and 106.3 (remedial and affirmative action). Compliance with Title IX requires a case-by-case evaluation.

Cost

The program's principal expense was staff, including coordinators, physical fitness contractors, and instructors. Some student costs, such as childcare or fees not covered by other funding sources, were also supported. Operating programs in Ohio received annual grants of $50,000. Costs could be reduced if the program is implemented within the context of a program already in place to serve disadvantaged women. Data provided for FY '96 show that the average cost per ONOW student was $1,010. An estimate of the earnings of ONOW participants who found full-time employment demonstrated that the program is a cost-effective use of public dollars.

Additional Resources

All new ONOW coordinators are required to attend a 3-day inservice session prior to the beginning of classes. The Ohio State Department of Education offers all ONOW coordinators two additional 2-day inservice sessions each year on topics like curriculum improvement/updating, serving students with special needs, assessment issues, collaboration with related agencies, and peer mentoring. Inservice sessions on diversity, legal rights in employment, and sexual harassment are also provided. Each ONOW coordinator is assigned a mentor who has expertise in areas where the new coordinator may need assistance. The state supervisor visits each site at least once a year and provides ongoing technical assistance.

Review Summary

Evidence of Effectiveness: Excellent

Data in the annual reports for programs in both educational and correctional facilities indicated that the programs were highly effective. A 5-year follow-up study by a third-party evaluator confirmed the programs' success rate.

A 5-year longitudinal study by Ohio State University tracked the earnings of women who had completed the ONOW program. The data showed higher wages for those who entered nontraditional employment and confirmed that 70 percent of the respondents continued to be employed; however, because the study measured a limited population, it is not sufficiently conclusive to be entered as a claim of success.

A 1996 study of ONOW participants who had been on public assistance when accepted for the program found that 76 percent were working full time, completely off of public assistance, and earning an average of $9.38 per hour.

A long-term follow-up study was conducted in 1996, with a random sample of women who had completed the program between 1989–95. A total of 280 women out of the more than 2,100 who had finished the program were surveyed. In response to the question, "How satisfied were you with the training you received in the ONOW program?" (Using a scale of 1–4, with 4 being "very satisfied,") the overall program was rated at 3.63. The holistic nature of the program sets it apart from others. Inter- and intra-agency cooperation (for example, receiving funding for tools or childcare from partner agencies) aided in the program's overall success.

Claim	Evidence
1. Successful program completion for hard-to-serve groups.	• In FY '97, 82 percent of the ONOW participants served in vocational schools were unemployed at intake, with 17 percent having less than a high school diploma or GED. Six percent reported they had disabilities, 44 percent were on public assistance, 50 percent were single parents, and 43 percent were displaced homemakers. • Program review data show that 70 percent of the (387) 1995 participants, 71 percent of the (351) 1996 participants and 82 percent of the (391) 1997 participants, completed the ONOW program. • Annual program outcome data for correctional facilities show that in 1996, 91 percent of 257 participants completed the ONOW program; in 1997, 92 percent of 185 participants completed the program (1995 data were incomplete).
2. Success at job placement.	• In 1995, 43 percent of ONOW vocational school program completers were placed in nontraditional employment. Another 38 percent entered nontraditional vocational training. In 1996, 52 percent were placed in nontraditional employment and 41 percent entered nontraditional training. In 1997, 56 percent were placed in nontraditional employment and 40 percent entered nontraditional training (some duplicated count). Of the 1997 cohort completers, 87 percent entered nontraditional training or occupations, apprenticeships, or°GED preparation (unduplicated count). • In 1996, 87 percent of incarcerated ONOW program completers were placed into nontraditional employment or training or other programs.
3. Improved gender balance in vocational programs where the school operates an ONOW program.	• Nontraditional vocational enrollments in schools with ONOW programs reflect greater percentages of female students than schools not participating in ONOW.
4. Reduced recidivism rate for female offenders.	• The recidivism rate for ONOW participants is 5 percent compared to 30.1 percent for individuals (both male and female) who have participated in other vocational programs (1998 data from the Ohio Department of Rehabilitation and Corrections).

Quality: Excellent

Reviewers of the ONOW program gave it high ratings for quality in the following areas: high placement and retention rates for program participants; extensive staff development; and successful selection of coordinators who are motivated and well-trained in equity issues. The curriculum manual and training workshops have helped coordinators in infusing equity principles into the work with both the staff and the students.

The women who choose Non-Traditional Occupations (NTO) programs tend to be very motivated. Where potential barriers exist, ONOW uses a referral system to address them. Examples of potential barriers and ways of addressing them include the following:

Barrier: Low academic achievement (less than 11th grade math and eighth-grade reading level).

Referral: The local Adult GED program, with the understanding that upon raising academic performance to the minimum acceptable level, the applicant can be enrolled in ONOW.

Barrier: Emotional disability that prohibits safe participation in the program.

Referral: Local counseling, vocational rehabilitation services, and mental health agencies. When potential students demonstrate their ability to participate successfully in the ONOW program with local counselors and/or service agencies, they are enrolled.

Barrier: Physical disability that may require accommodation.

Action: The ONOW coordinator works with the students on an individual basis to help them participate as fully as possible in the program. All ONOW programs (except the one in Ohio's main women's prison) are wheelchair accessible. Physical fitness routines are modified to accommodate the student.

Usefulness/Replicability: Excellent

Available data demonstrate that ONOW has been successfully replicated in multiple sites in Ohio and in several other states. It has been used for diverse incarcerated and non-incarcerated populations. West Virginia operates five ONOW sites in school settings and one at a community-based organization. Pennsylvania, Wisconsin, Montana, and California have used the ONOW program curriculum guide in developing their own nontraditional training programs.

The panel concluded that ONOW has excellent potential for use by others. It is especially effective in areas where the unemployment rate is low and nontraditional jobs are readily available; however, data also show the program to be successful in areas where unemployment is high. Program sites in both rural and urban areas have been successful in finding jobs and placing women in nontraditional occupations.

An average of 84 percent of ONOW participants were placed in nontraditional training programs, employment apprenticeships, or GED classes.

Women of color have participated in the program; for example, in 1996, 50 percent of the incarcerated participants and 36 percent of the participants served in school settings were women of color, predominantly African-American. Beginning with FY '99, outcome data will be disaggregated by race.

While the cost of the program appears to be reasonable, it is not self-sustaining because no tuition or fees are paid by students. The majority of the local site implementation costs are for staff, physical fitness contracts, hands-on labs, instructional materials, and support services for students.

In Ohio, the program sites at vocational schools and community colleges were funded through the Perkins Vocational and Applied Technology Act of 1990, specifically with the 3.5 percent set-aside for sex equity programs. The Ohio Department of Rehabilitation and Corrections has been funding the sites at the state-run women's prisons. Because prospective students are primarily low income, they would be unable to pay much

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tuition unless a federal or state program reimbursed them, and since the program is short-term, students are not eligible for Pell tuition support.

Educational Significance: Excellent

The reviewers concluded that ONOW contributes to making NTO for women a positive work alternative. It is comprehensive for the students, providing a balance between work information and hands-on experience.

A unique feature of the program is that it addresses women's labor history as well as sex discrimination and harassment. The panel was impressed with ONOW's positive impact on the participants, its attention to equity, and its strategies for making the pieces fit together to serve participants' mental, physical, and economic needs.

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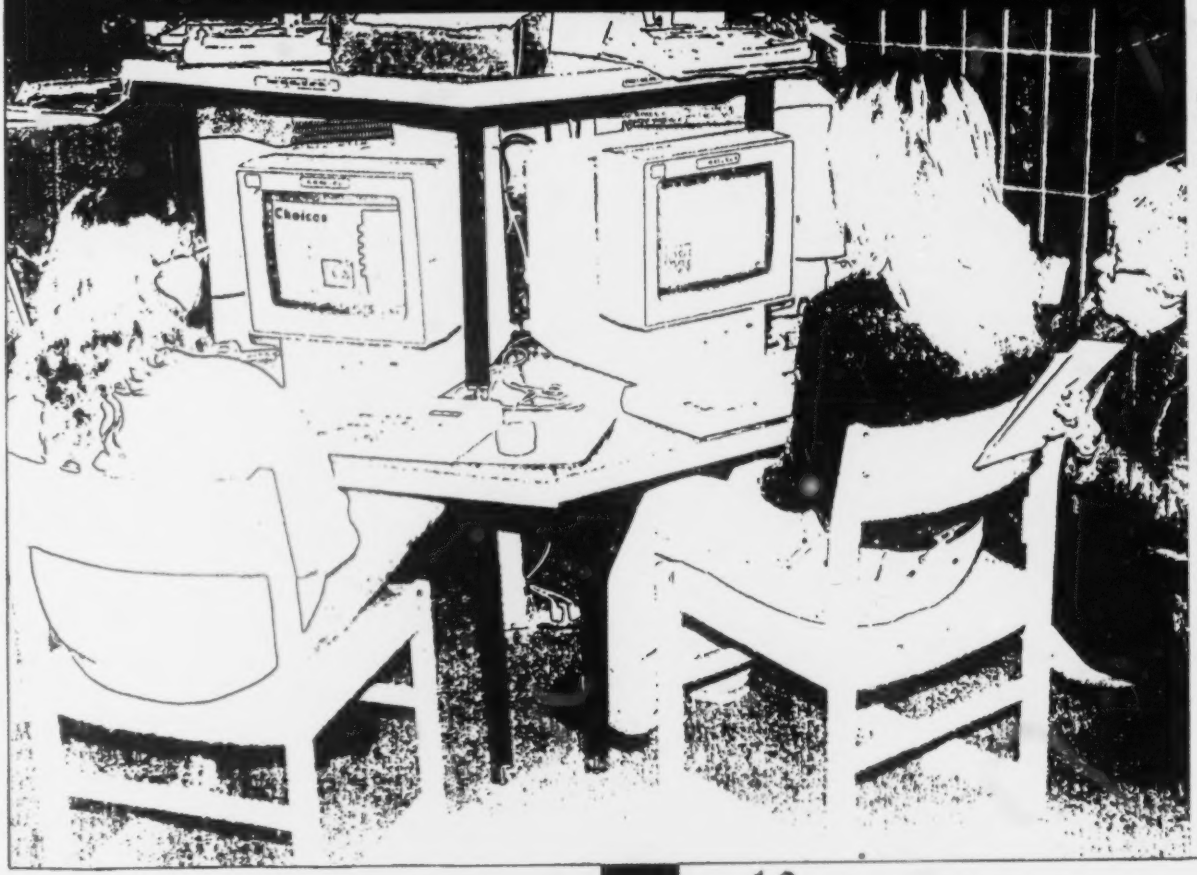
Gender Equity in Vocational/Technical Education and School-to-Work

Summary Reviews of Promising Programs



PROMISING

Career Choices Curriculum

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Program Description

The *Career Choices Curriculum* is a comprehensive guidance program designed to address career and life planning topics of concern to young people in grades 9 and 10, and to young women in particular. The program is thematically integrated into academic subjects—English/language arts, math, and social studies. Its goals are:

- to demonstrate the relevance of education (thus motivating teens to apply themselves to their studies);
- to help adolescents establish and consolidate identity (a particular problem for females);
- to foster ambitious, yet realistic career plans (many young women aim too low);
- to expose young people to the myriad career choices available in both traditional and nontraditional fields; and
- to teach the skills and attitudes necessary for success at home and on the job in the 21st century.

Target Populations

Career Choices Curriculum was designed for students in 9th or 10th grade—a critical time in the developmental cycle for young people, and one when females in particular often begin to scale back their goals and dreams. It is also a critical time to address teen pregnancy prevention. The curriculum has been used in mainstream language arts classrooms, in juvenile correctional institutions, with Job Training Partnership Act (JTPA) youth programs, and in teen-parent programs across the country.

Cost

The curriculum materials include:

- *Career Choices Curriculum* ($24.95), the main textbook;
- a consumable *Workbook & Portfolio* ($6.95) for use alongside the text;
- a comprehensive *Instructor's/Counselor's Guide* ($22.95) that offers a variety of strategies and resources for special populations;
- *Possibilities* ($11.95), an anthology of literary pieces from a diverse group of authors that makes the course particularly useful in English/language arts departments; and
- *Lifestyle Math* ($8.95), a mathematics workbook that helps students understand the relevancy of mathematics in the context of their futures.

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Total cost per classroom depends upon whether the instructor uses the optional English/language arts and mathematics books. Materials can be treated as interdisciplinary units in academic classrooms, as modules with specific classes, or with special populations.

Additional Resources

Academic Innovations schedules 50 to 60 day-long workshops every year to train instructors in the use of the materials. The cost of $85 includes a complete set of textbooks (value $72.75), lunch, and resource materials. Those who can't attend a workshop may borrow a training videotape at no cost. In addition, certified trainers are available for on-site training for districts and individual schools, and master teachers who have used the curriculum successfully provide a further resource.

The Academic Innovations Technical Support Department provides assistance by phone (toll free), e-mail, and a comprehensive Web site. An online discussion group makes it easy for ***Career Choices Curriculum*** instructors to share ideas, resources, and challenges, and helps to alleviate the isolation many educators feel.

Print resources include a free newsletter and resource and funding guides. The newsletter and updated ***Instructor's Guide*** contain a list of resources (videos, films, books) that could be helpful to teachers and students.

Academic Innovations has recently developed ***CareerChoices.com***, a Web site containing over 80 individualized lessons which link ***Career Choices Curriculum*** students and teachers to exciting and informative Internet resources. Using ***CareerChoices.com***, students can easily find help in the following areas:

- researching nontraditional career opportunities,
- exploring colleges and vocational schools,
- comparing salary levels for various careers,
- writing resumes, and
- creating a "real-world" budget.

Review Summary

Evidence of Effectiveness: Good

The Gender Equity Expert Panel felt that there was sufficient, consistent preliminary teacher and student self-report evidence, and anecdotal evidence to rate the effectiveness of this program as "good." Available data included teacher surveys and student essays, evaluations from users at multiple sites, and independent research and evaluation. All claimed that the ***Career Choices Curriculum*** is highly successful in achieving its goals. The Panel was impressed by the evidence related to the widespread use of ***Career Choices Curriculum***, and this is reflected in their "excellent" rating for Criterion 3, usefulness to others/replicability. The impact claims that the program helped students make deliberate career choices, decreased dropouts, and increased achievement in reading and mathematics are supported by some evidence. The ***Career Choices Curriculum*** teachers also rated ***Career Choices Curriculum*** as "Better" or "Significantly Better" than other programs with similar purposes.

In addition to evaluation data collected at each site, follow-up phone interviews were conducted with teachers and administrators to gather more in-depth information. Because the curriculum has been so widely used with JTPA populations, the course has been part of independent evaluations conducted by the U.S. Department of Labor. Although the developers have collected evaluation data in a variety of ways to support a variety of claims, no systematic evidence has been presented to demonstrate the curriculum's effectiveness in promoting gender equity. However, some of the teacher and student evaluative comments indicated positive results for female students.

In order to rate the program excellent on evidence of positive impact, the Panel would want to see more systematic collection and analysis of evidence disaggregated by sex, race, disability, English proficiency, and socioeconomic status. The few small studies were more formative than summative, and in some cases, focused on special uses of the program (in Denver, for example, students were paid to attend and could also receive course credit upon completion). The Panel would also look for convincing comparative information to show that the positive results for students (and perhaps their teachers) could be explicitly attributed to the program.

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Claim	Evidence
1. Extensive use of the curriculum in schools nationwide.	● Over a period of 7 years, the program was used in more than 1,800 schools nationwide. ● Increased use of curriculum each year, as demonstrated by evaluation data and sales records. (In 1990, 6,342 *Career Choices Curriculum* books were sold; in 1997, 39,484 copies were sold.) ● Increased enrollment patterns in *Career Choices Curriculum* in multiple school districts.
2. Helps students understand the importance of making deliberate career choices and may contribute to decreased dropouts and higher achievement in reading and math.	● Eighty-three percent of Denver students who participated in the JTPA Academic Enrichment Program indicated they believed the course would help them in the future. ● Denver JTPA's Academic Enrichment Program used *Career Choices Curriculum*. Pre- and post-WRAT tests showed significant gains in reading scores among seven of eight groups and in math scores for five of the eight groups. All other groups showed positive gains. ● Cochella Valley High School (90 percent Hispanic) requires *Career Choices Curriculum* for all freshmen. Since 1993, when the program was first used, the dropout rate has fallen from the highest in the county to the lowest. ● Teacher reports indicate that the materials have worked with students from minority/ethnic backgrounds. Data from North Dakota suggest that teachers perceived the students to be engaged and generally positive about the program.
3. Effective in serving female students.	● Student quotes in teacher surveys reflect changes in female students' career plans, including the choice of nontraditional careers, based on better understanding of careers and the cost of living. ● Teacher comments from multiple sites where pregnant and parenting teens were present demonstrate positive impact of the curriculum.
4. Teachers rated the curriculum as "Better" or "Significantly Better" than other curricula.	● Data from annual questionnaires completed by *Career Choices Curriculum* teachers over the last 4 years.

Quality: Excellent

The curriculum is unique in that it is interdisciplinary and designed to truly integrate career guidance into the core high school curriculum (language arts and mathematics). In addition, the program's adaptability allows it to be used with and complement other similar materials. The *Instructor's/Counselor's Guide* provides excellent assistance. The career guidance is appropriate, helpful, and comprehensive in scope.

The materials meet the special needs of girls for career development (a need often identified in research) in a thorough manner. They include information regarding nontraditional occupations, workplace rights and responsibilities, and blending work and family. In addition, the materials reflect sensitivity and inclusiveness regarding race, gender, and disability. Academic Innovations, the developer of the curriculum, updates the materials every 2 years. Data and information related to gender equity were accurate and research-based.

Usefulness/Replicability: Excellent

Whether used by itself or in combination with other materials, the *Career Choices Curriculum* is an excellent resource for teachers and counselors. In addition to the fact that the cost of the materials is competitive with comparable materials, the developers provide training, technical assistance, and a Web site to support the curriculum users.

Academic Innovations has given copyright permission for Braille editions of the curriculum. In addition, audiotapes have been made that include descriptions of the pictures in the book. The curriculum has been effectively used with students on Indian reservations, Hispanic populations, African-American populations, and in correctional institutions.

Each year for the last 5 years, between 5,000 and 10,000 economically disadvantaged students have used this curriculum in their JTPA summer youth programs. A high percentage of these individuals come from ethnically diverse backgrounds.

Because of the flexibility of the curriculum and its value in conjunction with other materials, *Career Choices Curriculum* provides opportunity for widespread replication. The owners of Academic Innovations have a long track record of taking programs to national scale and providing the support for successful implementation. Data on book sales and curriculum use show increases in both areas.

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Educational Significance: Excellent

The developers of the curriculum should be applauded for their approach to integrating gender equity issues and career decisionmaking into the core academic curriculum. ***Career Choices Curriculum*** approaches gender equity by building it into the curriculum in a manner that engages all students, regardless of gender. The authors have a long history of writing and publishing gender equity books, including *Choices, A Teen Woman's Journal for Self-Awareness and Personal Planning*, Advocacy Press, 1983; *Things Will Be Different for My Daughter: A Practical Guide for Building Her Self-Esteem and Self-Reliance*, Penguin, 1995; and several other nationally renowned equity titles. They designed these guidance materials to be used in core academic courses, because of the resistance of many educators and students to separate or single-sex equity initiatives. In order to have all girls exposed to these concepts, they designed the course for all students. Because the course fits into the academic classroom (English/Language arts for example), the authors have been able to provide a basis for gender equity and move toward their goal of reaching a far greater audience.

The ***Career Choices Curriculum*** is founded on an understanding of the research and statistics that are the basis for efforts to achieve gender equity, particularly with respect to self-knowledge and career development. Because it focuses on universally necessary skills, such as economic self-sufficiency and risk taking (two areas that schools need to better address for girls), the curriculum has an appeal for all students. This strength is one of the reasons the curriculum has become so widely used and respected in the field of gender equity and career development.

With regard to federal mandates, the curriculum addresses the School-to-Work goal of serving "all students" in an exemplary manner. It also makes a significant contribution to improved strategies for teaching and learning, especially in regard to its interdisciplinary approach.

Gender Equity in Mathematics, Science, and Technology

Summary Reviews of Promising Programs

PROMISING

ASPIRE: Alabama Supercomputing Program to Inspire Computational Research in Education

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Program Description

ASPIRE provides 1-week and 2-week professional development programs for high school and middle school teachers to help them instruct students in solving problems using a computational science approach to problem solving. Students learn problem definition techniques, mathematical modeling, how to develop simulations on computers, including supercomputers, and scientific visualization and develop writing and presentation skills by participating in an annual statewide EXPO. The program incorporates a project-oriented approach to solving real world problems. The goal of the program is to inspire students to become excited about mathematics, science, and core subjects. The goal is to train teachers so they will have the skills that will enable them to incorporate innovative investigative techniques in computational science in their teaching methodology.

All students who participate in the ASPIRE program are expected to develop a project for submission to a state EXPO competition. The EXPO is a specialized science fair in which only projects developed on the computational science model (i.e., one that uses data generated through a computation model to arrive at research conclusions) are eligible for submission. It differs from a traditional state science fair in that the projects must be computationally based and are judged on the process used to solve the problem as well as research conclusions.

Target Populations

The target populations include teachers interested in professional development training and all students of middle and high school age. Females, minority students, and prospective students in computational science classes are specifically targeted. The program reaches a broad and diverse group of students and teachers in all areas of Alabama, and to some extent, in other states. ASPIRE has been implemented in both public and private schools throughout Alabama in rural and urban areas that have predominantly minority populations.

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Cost

Total cost is approximately $2,100 per 1-week teacher training workshop with 20 participants. Per teacher cost is $105, which averages to a cost of $5.25 per student (assuming 20 students per class). Double the estimates for a 2-week workshop. Schools using ASPIRE must have Internet accessible classrooms. Materials are available online and are available at no cost. They are accessible through the main ASPIRE Web page.

Additional Resources

Teachers who have been through the training and have experience in using computational science in the classroom would be best qualified to teach the material. A list of teachers who have previously served as instructors is available from the program.

The Web page contains general information about ASPIRE, upcoming events and workshops, an e-zine, and materials and topics used in the three levels of workshops. From the Web site, anyone who is considering using ASPIRE can access information ranging from program objectives, to details about material covered in each class, and thus be able to make an informed decision about whether they want to take the training.

The main Web site contains links to other sites that provide supporting material, examples of projects, class exercises, and other materials that support the use of computational science in K–12 classrooms. Once a teacher goes through the course, he or she can use the materials as an online reference. The materials are continually being updated with additional projects, examples, and new topics. Teachers can stay current by periodically checking these materials. Additional information is available from links on these Web sites:

http://www.aspire.cs.uah.edu/

http://www.krellinst.org/AiS

Review Summary

Evidence of effectiveness: Good

The ASPIRE program has been evaluated using multiple sites in Alabama as well as EXPO evidence from other states. The gender equity results were positive and were generally consistent over the years and in various states. Although ASPIRE is designed to be used by teachers and students of both sexes, the claims of positive impact focus on the success with female students. As one reviewer noted, "Gender equity is a significant ***outcome*** rather than a significant ***purpose*** of the project." Success was measured in terms of female enrollment, attitudes, project performance, and gains on content tests. Student enrollment in the ASPIRE program at the high school level has been approximately equal by gender. Participation rates and achievement are high for both genders, with both showing gains on measures of knowledge about computers. In the second year of the project, girls won about 50 percent of the prizes in the various contests based on course projects. These findings are notable, because computational science is an area in which females are typically underrepresented.

The panel agreed that the evidence of positive impact on gender equity was sufficient to support a rating of "good," but they required additional evidence in order to give the program a rating of "excellent." There was, for example, no comparison of ASPIRE student participants with participants in other related computer science courses. Since student projects were required for all ASPIRE course participants, and most submitted their projects to the state EXPO, the data about female participation in the EXPOs as being generally on a par with the males may not be a strong indicator of success beyond course participation and completion. It would be helpful to have follow-up information (in addition to EXPO interviews) on more participants, to see if gender equity related to continued interest and use of these computer/mathematical modeling skills. There was also no information about the performance or success of minority or disabled students.

Claims: To train teachers to teach a course on "using computational science in solving real world problems" that will promote achievement for both boys and girls in terms of:

Claim	Evidence
1. Gender equitable enrollment in the classes.	• In the second year of evaluation (1996), high school enrollments in the program were about 50 percent female in the 41 sites in Alabama. Since the inception of the middle school program in 1997, the male/female ratio has been approximately equal. Between 150–200 students have participated in the middle and high school ASPIRE programs each year.
2. Gender equitable student success in the ASPIRE Program.	• ***Gender equitable participation in the state EXPOs.*** From 1994 to 1996, the participation of females and males in the high school EXPO was approximately equal; both females and males chose to participate in this highly technical program as an elective course. However, during the 1996–98 school years, more males participated in the state EXPOs than females. Although males somewhat outnumbered females in submission of ***individual projects*** in the 1997, 1998, and 1999 EXPOs, the distribution of members of ***team projects*** by gender was approximately equivalent for all years except 1998. In 1998, a greater number of males participated in the overall program. • ***Gender equitable awards in the state EXPOs.*** Most of the results for both middle and high school students show boys and girls similar in competitive achievements as measured by awards won at the state EXPO. At the high school level in 1996, 5 of the 12 winners were female; in 1997, 12 of the 23 winners were female. In 1998, at the national level as well as in Alabama, the number of winners who were female dropped to 25 percent. At the 1999 Alabama EXPO, females again received approximately the same number of awards as males. At both the state and national levels, female participation and level of recognition were lower in 1998 than in previous years. In 1999, both participation and recognition were up again. • ***Scores on a content-based authentic assessment.*** In the initial multisite study in Alabama, and in a 1997 follow-up study of 232 Alabama high school students, the pre- and post-test content-based authentic assessment showed increases in student learning during participation in the computational science classes. There were no significant gender differences in these results, indicating that females and males performed similarly on this assessment.
3. Positive attitudes and interest in science and technology.	• Thirty-one telephone interviews with girls indicated positive attitudes toward their experience in the ASPIRE program, as well as a desire to continue taking courses in science in high school or college. Interviews were also conducted with 25 males. The choices of future college courses and plans for careers in math, science, and technology made by males were shown to be directly influenced by their participation in the ASPIRE program. • In addition, student perceptions of and attitudes toward the ASPIRE program have been documented on a yearly basis since 1994 by written surveys completed at the EXPOs. These evaluations indicate that students found learning computer programming skills and developing a project to be the most difficult aspects of the program. Nevertheless, a majority of students indicated that completion of the project resulted in increased confidence in their ability to be successful in the kinds of skills taught in the ASPIRE program.

Quality: Very Good

The pedagogy used in the ASPIRE program reflects sound educational practices with an emphasis on those techniques that engage girls, such as the choice to work on projects alone, in all-girl groups, or in mixed-gender groups as well as the integration of technology into other content areas. These educational practices are believed to be essential to replicating the program's success with females. Of the teachers who volunteered to participate in the program, 77 percent were female. No special qualifications were required other than an awareness to offer the program in a class format and the ability to access the Internet. While some of the teachers were specialists in math or science, others came from the content areas of business, graphic arts, and history.

One reviewer raised concerns that some of the specific computer content of the courses was "dated." The success of the program, however, appears to be unrelated to the specifics of the programming languages studied. The choice of Fortran as part of the content was considered acceptable at the schools studied because of the technology available at those locations in the early implementation years of the program. The course traces the history of computing and looks at the Internet and some of the more current types of hardware and software. Since the time of the initial report submission, C++ and EXCEL have been added as programming tools for simulation of the mathematical models. These additions have helped update the content of the program. The addition of JAVA programming language and additional scientific visualization programs, such as VRML, provide access to cutting-edge technology.

It appears that the positive impact on female students is related to the model of pedagogy used to deliver the technology content. For example, the program employs cooperative learning groups and integrates the use of technology across a wide spectrum of content areas.

ASPIRE addresses the issues of disabilities in several ways. Special accommodations make the program accessible to students who are blind or have hearing difficulties. Students with developmental disabilities in individual schools have been successful in completing their projects. A collaborative tool called Portals allows students to communicate with mentors and allows isolated rural students to contact mentors worldwide. Accommodations for hardware include telephone-based browsers, slow connections, voice input and output, graphical interface, and Lynx—a text-only browser. Web pages are designed to be universally accessible.

Usefulness/Replicability: Very Good

The model's system of thematic and project-based instruction is replicable and workable. It is now in use at both middle and high school levels and has been implemented in eight states outside of Alabama. Some adaptations would be required in terms of matching specific content of the course (especially the technology components) with the curriculum guidelines and available hardware and software at various sites. The program is easily and inexpensively replicated; its primary requirements are the availability of Internet resources and trained teachers.

Outside of Alabama, the computational science program is entitled Adventures in Supercomputing (AiS). These programs have been modeled directly on the Alabama program, and much of the professional development training for teachers in these states has been supplied by Alabama teachers. The selection criterion for schools that have participated in the AiS program was that the target student population be primarily from underrepresented populations. The Web site, http://www.krellinst.org/AiS, provides additional information about the AiS program. ASPIRE and AiS computational science programs have received funds from the U.S. Department of Education, U.S. Department of Energy, National Aeronautics and Space Administration, and the National Science Foundation in Alabama and four other states.

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Educational Significance: Excellent

This program appears to be very successful in recruiting and retaining young women in the fields of science and technology, as well as offering a viable course in computer science to all students in middle and high school. The strengths of the program that may account for its success with girls appear to be the integration of technology across content domains in ways that include emphasis on communication skills (especially that of writing). The project-based approach to instruction allows girls to work alone, in all-girl teams, or in mixed-gender teams as they choose.

PROMISING

EQUALS

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Program Description

The EQUALS mathematics program for educators is built on an understanding of the issues facing teachers and students, the demands placed upon teachers, and the challenges and opportunities inherent in teaching a diverse population. The program's goal is to create greater access to and success in mathematics for all students—especially female students and students from underrepresented groups. EQUALS helps K–12 teachers, administrators, parents, and community members enhance their own as well as their students' learning. Workshops model both materials and strategies that will make mathematics classes more dynamic and accessible to students who have a variety of learning styles or come from diverse ethnic and language communities. Curriculum materials include rigorous mathematics activities, thoughtful large-scale student investigations, and innovative assessment techniques. The activities involve construction and building, problem solving, logical reasoning, spatial reasoning, geometry, probability, statistics, and discrete mathematics.

The national EQUALS model for inservice workshops is 30 hours spread over 5 to 6 days in the academic year. Educators take part in a series of hands-on problem-solving activities in mathematics and equity awareness, learn how to foster cooperative teamwork, and become better informed about new technology. Career opportunities in nontraditional trades and professions, as well as the preparation needed to enter such fields, are explained. Participants learn how to help students work independently, in pairs, and in small groups. Like their students, they experience what it means to communicate mathematical thinking through writing, demonstrating, and presenting. The emphasis is on making mathematics interesting, collaborative, and grounded in problem solving and problem posing through the use of concrete and experiential activities.

Target Populations

EQUALS is designed for teachers, parents, administrators, and community leaders who work with students in grades K–12, particularly girls, students from underrepresented groups, those with special needs, and those from language minority communities. Educators who work with students with special needs will find the strategies, materials, and activities easy to modify. Several of the publications are available in English and Spanish.

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Cost

EQUALS workshops and materials are easily adapted, as evidenced by their long-term use in a variety of national and international locations and venues, such as schools, districts, county offices of education, state departments, systemic initiatives, and postsecondary institutions.

Publications, consultations, custom workshops, and inservices are reasonably priced. Refer to the Web site for descriptions, schedules, and prices, or call the general information number.

Additional Resources

A list of network sites that offer workshops and materials throughout the United States and in some other countries is provided on the EQUALS Web Site.

Review Summary

Evidence of Effectiveness: Good

Since 1977, 78,000 educators from California and 44 other states have participated in EQUALS inservice courses and workshops. The few studies of EQUALS provide some evidence that the program has helped educators pay more attention to gender equity issues, and that students have demonstrated some improved performance and decreased gender stereotyped attitudes as a result of the program. Although only one of these studies provided results of positive impact on students that were disaggregated by sex and race, the Panel felt there was sufficient evidence that EQUALS promoted gender equity to rate it as "good" on evidence of effectiveness. The claims and the supporting evidence from these studies are summarized below.

One of the studies conducted from 1985 to 1987 in Cleveland had a comparison group of non-EQUALS students. The other evaluations in 1988 and 1999 collected information from replications in California. In order to rate the claims and supporting evidence of positive impact on teachers and students as excellent, the Panel would have needed more extensive and convincing evaluations that showed the positive impact of EQUALS on advancing gender equity in replications across the nation. In addition to self-reported changes in teachers' behaviors, the Panel would have expected to see other evidence that corroborated these changes, particularly in respect to increased gender equitable teaching. Further, the Panel would have needed more convincing and comprehensive evidence to indicate that students from classes taught by EQUALS-trained teachers generally performed better on mathematics and problem solving and exhibited fewer gender gaps and stereotypes than those from classes whose teachers had not received EQUALS training. Since EQUALS has been used for over 20 years, the Panel would also expect to see some evaluations of EQUALS that indicated that it compared favorably with other programs with similar equity purposes and claims.

Claim	Evidence
1. Teachers engage in activities with the goal of changing teacher behavior regarding gender equity in mathematics. Workshops and inservice programs provide quality learning experiences for teachers and show them how to teach mathematics in ways that should be more effective with girls. The emphasis is on making mathematics interesting, collaborative, and grounded in real world problem solving; and on instructional models and materials that make mathematics classes more dynamic and more accessible to students with a variety of learning styles.	• Teachers report satisfaction with the training received and express their intentions to implement new teaching strategies and materials in their classrooms at the end of the training. Post-workshop evaluations by teachers are overwhelmingly positive. Many teachers comment on how their views about teaching mathematics have been greatly impacted by the workshops. • One California study showed that teachers listed equity issues—mostly with respect to gender—as one of the most important attributes of EQUALS. • A study in Cleveland found that teachers compared EQUALS favorably to other inservice programs; over 95 percent indicated they used more than 10 EQUALS activities during the school year. This study found that the EQUALS participants, when compared to the "control" teachers, were more confident, believed they had additional strategies to effectively teach problem solving and computation, and were more aware of gender equity issues and discrimination in their schools. • Preliminary results of the most recent California evaluation found that teachers were highly satisfied with the program and that they described behavioral differences in themselves after participating in EQUALS. They also found that teachers who worked with language-minority students reported an increased understanding of effective research-based approaches of bridging language gaps, enhancing language development, and increasing literacy skills through mathematics content. These reports are consistent among teachers who have Crosscultural Language and Academic Development and/or Bilingual Crosscultural Language and Academic Development certification. • In the earliest of the California studies, when asked to identify the most important aspects about EQUALS, one-fifth of the teachers cited the ability to share ideas and experiences and network with other math teachers. The same number of teachers mentioned that EQUALS gave them greater confidence in math or helped them enjoy math, often for the first time. Many others said that they felt more creative, were better teachers, were revitalized, and were willing to take risks. This study also reported that nearly two-thirds of the participants said EQUALS helped them change how they used their math textbooks.
2. Changes in teacher classroom behavior appear to help girls achieve in mathematics.	• EQUALS publications contain teaching ideas for activities that are interesting to girls. The Cleveland study reported that when student performance in problem solving was measured, EQUALS pupils in grades 7–9 improved their test scores significantly over the year, while their non-EQUALS peers showed a decrease. In year one, white females and black males increased their problem-solving scores more than other students did. • Scores increased for both EQUALS and non-EQUALS students in grades 4–6. EQUALS students demonstrated attitudinal changes towards mathematics in the first year. EQUALS students in grades 4–6 were less stereotyped in their perception of "math as a male domain" than their non-EQUALS peers. While all students in these grades perceived less "utility of math" over time, the drop for EQUALS students was less than that of their non-EQUALS peers. There were no obvious changes in student attitudes for grades 7–9.

Quality: Excellent

EQUALS provides mathematics staff development workshops for teachers and other educators with an emphasis on active learning, cooperative learning, and making connections between mathematics and everyday life. Although its inception predates the National Council of Teachers of Mathematics Standards, EQUALS was among the first to provide teachers with a constructivist approach to teaching mathematics. In addition, EQUALS has produced a number of resource books for mathematics teachers and the preservice teachers. These resources are of high quality as evidenced by their enduring use and support in the United States and internationally. The focus of the program has been expanded to address the mathematics education for all students, regardless of gender, ethnic background, and socioeconomic status. Workshops and materials received excellent reviews from participants over the past 20 years.

Usefulness/Replicability: Excellent

The usefulness of the materials and the ease of adapting them to different sites are evident in the program's continued widespread use over the years. While initial replication efforts were supported by grants allowing the training to be free to teachers, recent efforts to run the program on a cost recovery basis have also proven successful. EQUALS has been used with almost 80,000 teachers since it began in 1977. Since 1983, it has expanded to 76 sites in the United States. It reaches a diverse group of schools ranging from rural to inner city, and includes multicultural communities. Nearly 260,000 EQUALS publications have been sold nationally and internationally since 1977. All contain rich mathematics content, and provide activities that females and other underrepresented groups traditionally have less experience with—problem solving, logic, and spatial reasoning.

EQUALS has been funded by a number of agencies, including the National Science Foundation, the U.S. Department of Education, the Carnegie Foundation, the California Postsecondary Education Commission, Statewide Systemic Initiatives, and state departments of education.

Educational Significance: Excellent

As a staff development program for teachers, EQUALS is in the forefront of quality teaching approaches that reflect National Council of Teachers of Mathematics Standards and improve mathematics instruction for teachers as learners. Its successful expansion and replication nationally over 2 decades further demonstrates the importance of this program.

Members of the network have played significant roles in shaping policy across the nation. For example, in the publication *Arkansas Equity Benchmarks for Math and Science*, EQUALS is mentioned as part of the technical assistance provided to state schools. The American Association of University Women included EQUALS on the resource list in its 1996 publication "Girls Can." The National Council of Supervisors of Mathematics included references to EQUALS in ***Mathematics for All: A Source Book of Essential Information for Leaders in Mathematics Equity*** (1999). The EQUALS program, staff, publications, and activities figure prominently among the resources gathered.

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PROMISING

Family Tools and Technology

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Program Description

Family Tools and Technology (FT&T) is a coeducational afterschool program targeting 70 percent girls, 30 percent boys, grades 4–7, and their parents. Children and parents collaborate in problem-solving activities (using tools, simple machines, and LEGOs to design and construct models) that illustrate the importance of mathematics, science, technology, and engineering in the world beyond the classroom. FT&T was created to increase the number of girls who are excited about science and technology, and to encourage their continuing interest. It seeks to stimulate parents to become advocates for their daughters', as well as their sons', endeavors in science and technology, and to train teachers to promote girls' continued participation and confidence in problem solving and in real life applications of mathematics. FT&T challenges traditional gender expectations by providing career role models and activities that allow girls (with their families) to gain the same technology and pre-engineering experiences as boys.

Target Populations

Teacher-teams are trained to conduct a series of 7 sessions with students in grades 4–7 and their parents. The target is 70 percent girls in each group. FT&T has been conducted in 200 culturally diverse urban, suburban, and rural schools throughout New Jersey.

Cost

For teacher training, costs of participation in a 5-day training module are $1,600 per team (i.e., $160 each per day for two team members). Each teacher receives a FT&T Teacher's Manual in English or Spanish, prototypes of multicultural equity activities, games and videos, a tool kit, a LEGO Dacta Set, and logistics and recruitment materials.

The cost of conducting the initial 7-session program within a school district includes start-up costs for tools, LEGOs, and materials (approximately $1,100). Most of this is a one-time expense. In subsequent years, schools need only to replenish consumables (approximately $150–$200). Teachers typically are paid stipends from their school district for planning and conducting the program. Districts are encouraged to pay teachers according to the

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district hourly wage for afterschool activities, comparable with coaches and extracurricular advisors.

The Rutgers ***Family Tools and Technology*** program was developed from 1995 to 1998, with funding from the National Science Foundation's Model Projects for Women and Girls, the Geraldine R. Dodge Foundation, Bristol-Myers Squibb Foundation, Public Service Electric and Gas Co., the American Chemical Society, and Union Carbide Foundation. It is currently being run on a fee for services basis. Twenty-six of the urban New Jersey schools have received support from the New Jersey Department of Education's Career Equity Assistance Center at The College of New Jersey with set-aside Carl Perkins Act funds.

Additional Resources

The College of New Jersey has a Resource Center to support the program that includes books, audiovisuals, games, tool kits, and LEGO sets, that can be borrowed to conduct or enrich FT&T sessions.

Other resources for equity-focused family-involvement programs can be found at the Center for Family Involvement in Schools at Rutgers University's Center for Mathematics, Science, and Computer Education. This Center offers professional development programs for teachers in Family Math and Rutgers Family Science, using the nationally recognized ***Rutgers Family Science Teacher's Manual*** together with supplemental multicultural and career connections materials in English and Spanish.

Review Summary

Evidence of Effectiveness: Good

FT&T is a popular program that has reached a large number of diverse participants in New Jersey. Evidence supports the claim that students, parents, and teachers all showed improvement as a result of participating in the program, especially regarding issues of gender equity in science and technology. For example, as seen in the list of claims and evidence below, FT&T provided some evidence of increased use of tools by girls and decreased gender stereotyping about who uses tools. Parents said they encouraged their children to use tools and technology. Teachers reported they became more conscious of encouraging girls by increasing "wait time," using eye contact, making sure texts and activities were unbiased, keeping track of the number of times girls and boys asked and answered questions in class, and including research projects on women scientists in the curriculum.

The evidence to support the claims was based on a 1997 evaluation, and on some 1996 evaluation results where FT&T was implemented using 12 (rather than the current 7) sessions. The evaluations used a variety of pre- and post-questionnaires for students, teachers, and parents, and the results were generally similar for both academic years.

The Panel also appreciated the many ways that FT&T focused on gender, as well as other aspects of equity. Demographic data collected in the first two evaluations in 1996 and 1997 indicated that 35 percent of the participants were people of color. FT&T programs in participating schools have always included students with disabilities and their parents. Since these students are mainstreamed in New Jersey, they are encouraged to participate with their parents in all of the Center's afterschool programs. The Center's mission is to encourage all students, particularly those traditionally underrepresented, to participate in mathematics, science, and technology. Explicit data on the numbers of students with disabilities who have participated have not been collected, but anecdotal information is available from one participating school where FT&T has been successfully implemented with hearing impaired students.

In this Secondary Hearing-Impaired Program (SHIP) school in New Jersey, the participants included two Hispanic families, two African-American families, and three families from India. Teachers reported that the 11 children, all classified as having hearing impairments, attended all 7 sessions, participated in the hands-on activities, and finished projects each night. When the families came to the first FT&T session, the fathers assumed they would be doing the hands-on activities for their daughters. This expectation is not unlike that of many parents who come to the FT&T program. By the third session, however, as their daughters learned the process of problem solving, they insisted on completing the activities by themselves, with only a little assistance from their fathers and mothers. Teachers reported that the girls told their fathers to "sit on their hands" and watch how they used the tools to build their models. Teachers noted that this reflected a major change, since these children typically seek assistance and often do not finish projects on their own. The teachers added that this was the first time these students became invested in an afterschool activity and that their parents were able to "let go" and support their children's efforts to do it themselves.

While the Panel felt that FT&T had good evidence and good claims, they did not feel the evidence and claims were sufficient to meet the Panel's standards for excellence at this time. Although there were numerous positive pre/post differences and some significant gender differences on the attitudinal and behavioral self-report instruments, as might be expected from a variety of stimulus questions, not all of the pre/post student, parent, and teacher responses to the various questions showed gains. The Panel felt the evidence supplied by the participants would have been more convincing if it had been verified by other observers (or other types of evidence) and if there was information to demonstrate sustained changes in the students and their parents. While an argument may be made that FT&T is sufficiently unique and that the program, rather than other factors, contributed to the many positive pre/post ratings changes, there was no indication of comparisons with other treatments or prior trends in participants' attitudes and behaviors. Thus, the Panel felt the evidence supplied by FT&T makes a good, but not an excellent, case that FT&T has substantial and sustained impact on increasing gender equity in mathematics, science, and technology.

Claim	Evidence
1. Increase the number of girls using tools to solve problems, create designs, and construct models in science and technology activities, and foster positive attitudes about girls and women using tools for these purposes.	• Participants reported that activities using tools were successful and had a positive impact on boys and girls alike. The percentage of girls who said they used tools after FT&T increased, while the percentage of boys remained the same. Students also reported positive changes in attitudes favoring tool use by girls and women.
2. Stimulate parents to think it is important to encourage their daughters' endeavors in science and technology.	• While parents of both girls and boys came into the program thinking that encouraging their child was very important, ratings of daughters by parents became less gender-stereotypic after FT&T.
3. Train teachers to implement FT&T as a gender equity program that promotes girls' participation and confidence in real life applications of science and mathematics.	• Teachers from 93 New Jersey districts (including 33 "special-needs" urban districts) have been trained. All teachers who participate are required to conduct two series of seven FT&T sessions. Over 75 percent of the trained teachers have chosen to continue to conduct the FT&T program beyond the initial requirement.
4. Reduce student gender stereotypes about girls and boys and women and men by focusing on their use of tools.	• Particularly among boys, FT&T reduced gender stereotypes about girls and adults of both sexes who use tools. After FT&T, both girls and boys became significantly less gender stereotyped in their responses to items such as "When I use tools I feel..." After FT&T, not only did both girls and boys become less stereotyped in their responses, but the gender gap was reduced. In both areas, boys decreased their stereotypes more than girls did.
5. Increase the out-of-school, tool-related activities students undertake.	• FT&T students reported an increase in their out-of-school, tool-related activities. In out-of-school activities, both girls and boys increased the degree to which they used tools, fixed toys, used junk or LEGOs to build things, changed a bicycle chain, changed a tire, fixed electrical appliances, programmed a VCR, used a meter, and worked with electromagnets by approximately the same amount.
6. Impact teachers' behavior in equitable treatment of girls in science and technology.	• The primary activities teachers reported doing to encourage girls changed significantly after FT&T, to include giving girls extra encouragement, making sure to call on girls equally, making eye contact, ensuring that texts and activities are unbiased, giving wait time, inviting women role models to sessions, assigning research projects on women scientists and engineers, and expecting girls to excel. After being in FT&T, teachers listed significantly more ways they involved girls in problem-solving activities. Three-quarters of the teachers reported that they were using the FT&T problem-solving model and equity activities in their own classes. The major impact teachers reported FT&T having on their own teaching was attitudinal: they were using activities in their classes, becoming more open-minded, realizing that there is not just one right answer or way to teach, and becoming better facilitators.

Quality: Excellent

The development of FT&T was based on 18 years of the Consortium for Educational Equity's experience and success in using the Family Math Program; 12 years of Rutgers Family Science Programs; and 24 years of experience assisting schools in promoting equity and achievement through teacher training and program development. The philosophical underpinning of all family involvement programs is equity, and the goal is to promote mathematics, science, and technology literacy for *all* underrepresented girls and students of color, not just a privileged few. Inspired by the American Association of University Women (AAUW) reports, "How Schools Shortchange Girls" and "Girls in the Middle," FT&T incorporates the current research on gender equity to provide a learning environment that makes mathematics, science, and technology exciting and accessible to girls, who are typically on the margins of science and technical experience in both majority and minority populations.

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Usefulness/Replicability: Excellent

FT&T is a popular program that has reached over 400 teachers and approximately 6,000 families. A system for dissemination has been developed that includes training, manuals, tools, materials, and continuing technical support for those who have taken the teacher training. Although all original sites had been in New Jersey, the project's outreach has been expanding and now includes sites in New York, South Carolina; and soon to be in California. FT&T is designed to be used with diverse multigenerational family members in mixed-sex settings, thus increasing its flexibility and utility for many potential users.

The Center translated the FT&T activities into Spanish in order to accommodate the many requests from schools with a large percentage of Spanish-speaking families. The ***Family Tools & Technology*** program and its logo have been copyrighted by Arlene S. Chasek, former director of The Center for Family Involvement in Schools at Rutgers University. The program is featured on the National Science Foundation's Program for Women and Girls CD-ROM.

Educational Significance: Excellent

The integration of math, science, and technology in educational settings enhances interest in this subject matter when it includes hands-on, real life problem solving, and is cooperative and open-ended. Pre-engineering and architecture (subjects unusual to find before high school) are introduced in the early school years. All FT&T activities are aligned with and reinforce national mathematics, science, and technology education standards, in addition to New Jersey State Core Curriculum Content Standards in mathematics, science, technology, history, language arts, workplace readiness, and art. While afterschool mathematics, science, and technology programs designed to increase gender equity are typically only for girls, FT&T targets girls and their parents in co-ed settings.

PROMISING

National Science Partnership for Girl Scouts and Science Museums

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Program Description

The *National Science Partnership* (NSP) is a collaborative effort between Girl Scouts of the USA in New York and The Franklin Institute (TFI) Science Museum in Philadelphia. Its goal is to establish partnerships between local Girl Scout councils and science-strong institutions around the country to promote science interest in leaders and girls, especially those from underrepresented populations. NSP provides 2-hour leader training workshops for each of seven Girl Scout activity kits. Each kit contains 12 to 25 hands-on activities for girls, ages 6–11. These kits are supplemented by materials available from a supermarket for 5–7 hours worth of activities with 15 girls. They are used for Brownie Girl Scout Try-Its and Junior Girl Scout badges. Although originally designed for, and used by, the Girl Scouts of the USA, the NSP program provides a model for partnerships between museums and other youth-serving organizations.

Target Populations

The target populations are audiences underrepresented in science, specifically Brownie and Junior Girl Scouts, ages 6 to 11, Cadette and Senior Girl Scouts who participate in a variety of leadership and facilitator roles, and adult Girl Scout volunteers who are trained to conduct the activities with girls. The Girl Scout organization has 2,750,000 members, 80 percent of whom fall into the Brownie and Junior Girl Scout age levels. NSP is now available to all councils and partnering science institutions, and thus available to 2.2 million Brownie and Junior Girl Scouts. To reach girls underrepresented both in Girl Scouting and as science museum visitors, NSP has also been used in homeless shelters, Indian reservations, schools, afterschool activity centers, resident and day camps, large events for girls and/or adults, and Girl Scouting Beyond Bars, which involves incarcerated women and their daughters.

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Cost

The cost of the program varies by level of involvement. The only required expense for obtaining access to the program is a minimal cost for NSP training. ***Partners In Science: An NSP Guidebook*** ($7.50) is available to anyone interested in obtaining information about NSP and its various models. It contains worksheets that illustrate critical components for establishing informal education/youth organization partnerships. The seven hands-on science activity kits are keyed to the requirements for the Girl Scout recognitions. Activity kits, including the Leader Guide, range from $20 to $29, and are available, with the requisite training, to any of the 317 Girl Scout councils nationwide or any partnering science-strong institution. Science-strong institutions include science museums, children's museums, professional organizations, corporations, and universities. Information on future training workshops is available from either Girl Scouts of the USA or The Franklin Institute.

Additional Resources

In addition to ***Partners In Science: An NSP Guidebook*** and the seven activity guides and kits available in English and Spanish, there are two training videos, three training handbooks, and a project patch.

Review Summary

Evidence of Effectiveness: Good

The NSP provided a variety of types of evidence to support their claims that the program increased girls' exposure to and interest in science, helped Girl Scout leaders improve their ability to provide science activities, and NSP sites increased partnerships with science museums and informal education organizations. Details are included in the claims and evidence section table. The Panel felt the evidence to support claims 1 and 2 that related to impact on the girls and their leaders was generally convincing, especially since data from multiple quantitative and qualitative sources converged. The Panel also felt that the program implementation claims 3 and 4 were supported by ample evidence that the program was able to continue and even expand.

The Panel felt that NSP had evidence and claims to support a rating of "good," but that they were not sufficient to meet the Panel's criteria for a rating of "excellent" at this time. In particular, the impact claims involving changes in leaders and the girls themselves showed mixed results. For example, one result shows that on the pretest 60 percent of the girls "liked science a lot," while on the post-test the percentage was 67 percent. Few tests of statistical significance were provided. Some results favored nonusers of the program on items such as "being excited about doing science." Some users of the program showed an increased perception of science as "hard." Also, while there is some logic to suggest that NSP is sufficiently unique, that it, rather than other factors, contributed to the results, there was no indication of comparisons with other treatments or systematic evidence of prior trends in participants' attitudes and behaviors to establish a convincing case that the results were mainly attributable to NSP activities. However, there was some fascinating evidence on long-term positive impact on some of the girls who had initially used the kits as Brownies and recalled the significance of their involvement 6–7 years later as Cadette Girl Scouts.

Claim	Evidence
1. To increase the exposure of girls in diverse populations to science by providing hands-on science activities and visits to science museums. Many of the Brownie and Junior Girl Scout participants associated this exposure with increased interest in science.	• To date, the project has served a large population. Eighty Girl Scout councils and 54 science institutions formed partnerships, training 11,500 leaders and reaching 130,000 girls during the first 3 years of the program. The diversity of girls participating in this project is limited only by Girl Scout membership (Girl Scouts is open to all girls, and has a strong organizational commitment to diversity and pluralism). Leader Guides are available in English and Spanish. Impact numbers continue to be recorded based on kit distribution. • Effectiveness in cultivating science interest in girls was indicated by data collected through interviews, observations, questionnaires, and badge sales. While the results were not consistent across time and sites, and while some of the control groups did as well as the participants on some indicators, there is some evidence that many girls involved in the program increased their interest in science. ▪ Although girls reported positive attitudes toward science prior to using the kits, even more had positive attitudes after using them. ▪ Girls believe the activities they did with NSP differed from school science activities, because they were more hands-on and allowed them to work together. ▪ One year after using the science kits, a sizeable follow-up sample of girls (1) remembered particularly enjoying the hands-on aspects of the kits, and (2) reported participating in other Girl Scouts of the USA related science activities. ▪ One year after using the kits, a sample of leaders reported that their girls had a continuing curiosity about science and experimentation. ▪ Cadette Girl Scouts who had used the kits as Brownies 6 or 7 years earlier had positive attitudes about science, and remembered specific kit activities, such as making helicopters, studying stars and constellations, making tornado bottles, and studying electricity. Several have returned as older girl Program Aides, serving as facilitators to NSP 9 or 10 years after participating in their first NSP activities. ▪ While some local sites have the capability of measuring science-related badge sales and have reported increases, this information cannot be extracted site by site from the national sales figures.
2. To develop Girl Scout leaders' skills and comfort levels in leading science activities, enabling them to implement NSP with appropriate training, resources, and support.	• Training models were developed to increase leader confidence and competence in leading girls in science exploration. These models ensure that Girl Scout leaders have preparation, resources, and support, and help leaders serve as role models for the girls. There is strong narrative evidence, provided by evaluators and by sites in quarterly reports, that both the girls and their leaders found the science activities fun and interesting. • Evaluation results based on interviews, questionnaires, and observations indicate that the training helped the leaders increase their ability to use the kits and learn about science. However, many of the pre/post responses relating to leader attitudes toward science were mixed and probably not statistically significant. Also, much of the evidence came from a limited number of participants and did not include pretraining information on leaders' views, knowledge, and skills.

Claim	Evidence
	▪ Leaders in 1993 rated science kit training a 4.3 and trainer effectiveness a 4.2 on a scale of 1 to 5, where 5 denoted "excellent." ▪ Leaders trained in the use of science kits reported a 3.8 level of confidence—where 3.0 denoted "confident" and 4.0 denoted "very confident"—in their ability to conduct science activities with their troops. ▪ Leaders indicated in 1994 and 1996 follow-up interviews that they carried out additional science-related activities with their troops after using the science kits.
3. To establish and extend alliances between Girl Scout councils, science museums, and other informal education organizations. (Note: This claim can be seen as more of a claim to support one aspect of usefulness to others than as a claim of positive impact on girls and their leaders.)	● As a result of NSP, new partnerships have been forged that are of benefit to both partners and their respective constituencies. NSP has expanded the meaning of "science partners" (originally defined as science museums), to include children's museums, nature centers, universities, professional organizations, and corporations. This has led to a wide range of models for partner roles, expectations, and community linkages. A 1997 survey indicated that about 10 percent of the NSP sites had expanded to include new partners. ● Locally based alliances have developed between the science and/or Girl Scouts partners and women's organizations (Altrusa, American Association of University Women, Association for Women In Science) and with local schools as a result of the entree provided by NSP and the partnership nature of this initiative. Numerous examples are provided in ***Partners In Science: An NSP Guidebook***. Outgrowths include museum-based programs, hands-on science programs in the schools, mentoring relationships with local colleges and universities, science career events within the community, afterschool support for girls in disadvantaged settings (homeless shelters), and recognition and heightened visibility of the work the science institution and Girl Scout partners do to encourage girls' achievement and involvement in science.
4. NSP has continued to grow and increase participation of partner organizations and girls. (Note: This claim can be seen as more of a claim to support one aspect of usefulness to others than as a claim of positive impact on girls and their leaders.)	● NSP has continued to flourish each year after the National Science Foundation 1992–95 funding, expanding by at least 10 new sites annually. This expansion has increased the potential to impact all eligible girl members. Also, NSP has been highlighted by NSF as a model project for developing community partnerships and institutionalizing a project on a long-term basis.

Quality: Excellent

This NSF-funded program was well designed, conducted according to plan, and thoughtfully evaluated. By linking informal science organizations with Girl Scout councils at the local and national levels, providing leadership training, and offering kits with interesting hands-on science activities, science enrichment is provided to the girls who participate. The partnership between Girl Scouts and informal science organizations contributes to the quality of the enrichment and has led to numerous programs and initiatives that build on the foundation created through these initial science-focused partnerships. Mechanisms for quality control (training videos and workshop outlines) have been developed and project evaluation suggests consistency in the quality of the program implementation. The quality of a site's commitment is obviously dependent on local leadership.

Girl Scouting is open to all girls who meet the membership requirements and accept the Girl Scout Promise and Law. Several policy statements reflect the organization's desire to serve all girls, including those from currently underrepresented populations and girls who have special needs. This applies to all Girl Scout councils, including those involved in NSP.

Girl Scouts of the USA also uses the following:

- Gender Equity Module, Ensuring Unbiased Behavior in an All-Girl Environment
- Institutionalizing Pluralism: A Personal Growth Continuum
- Organizational Continuum for Institutionalizing Pluralism

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Usefulness/Replicability: Excellent

Although leadership training is required, training handbooks and low-cost materials are available, making NSP easy to replicate or adapt. The program is flexible, and thus easily adaptable to a multitude of settings and venues outside of Girl Scouts—churches, schools, youth groups, and museums, for example. While standard copyright restrictions apply to the written materials, permission to use individual activities can be obtained by a written request. The program in its entirety, however, is specifically developed for the Girl Scout audience and should not be used by others offering programs to youth without adaptation. After science institutions and Girl Scout councils developed their partnerships, collaborations with other groups and organizations have often emerged using the collaborative model of NSP. A 1997 questionnaire distributed to all Girl Scout Councils in the NSP directory indicated that over 90 percent reported continued active involvement with NSP activities, especially workshops for leaders and special events for girls.

Educational Significance: Excellent

The project gives girls an opportunity to "do" science in ways that the research suggests is supportive of learning styles favored by girls—i.e., working together, being led by role models, and doing projects with relevance for their lives. Many girls learn to dislike science in elementary grades because it is either poorly or seldom taught. NSP has made a significant start in changing this mind-set. As stated by one reviewer, "This project is making significant strides to improve the learning and appreciation of science for thousands of girls." It also provides science kits that would be useful to those working with children ages 6 to 11 in either formal or informal educational settings.

PROMISING

Playtime is Science: An Equity-Based Parent/Child Science Program

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Program Description

Playtime is Science is an equity-based parent/child science program for grades PreK–3. The program was developed to address several equity concerns related to science education reform. It begins at the lower elementary level of education, and its target population is students from groups underrepresented in science (see Target Populations below). The inquiry-based activities focus on the physical sciences, an area seriously neglected in elementary school, and have a strong focus on parent involvement, providing parents with training to become facilitators of the program. ***Playtime is Science*** stresses that teachers and parents know more science than they think, and therefore can play an important role in helping children gain interest, confidence, and competence. ***Playtime is Science*** encourages teamwork among administrators, teachers, and parents, who plan together to bring the program into the classroom and/or the larger school community.

Target Populations

The target population includes grades PreK–3, parents, teachers, community groups, and specifically these groups that are underrepresented in science: all girls; children of color; children with disabilities; and children from low-income families.

Cost

The ***Playtime is Science*** materials package contains a comprehensive set of components designed to foster success. It includes the ***Playtime is Science*** Notebook, a 200-page Facilitator's Guide with 10 self-standing activity cards; a Leader's Guide for trainers; a set of 3 program videos; and a poster. All parent-outreach materials are produced in English and Spanish, and the materials come packaged in a colorful canvas tote bag. The Facilitator's Notebook, with activity cards and poster, is $69.95. The activity cards are $24.95. The entire set (Facilitator's Notebook with activity cards, videos, Leader's Guide, poster, and tote bag) costs $249.95.

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Additional Resources

The ***Playtime is Science*** training package includes a 3-day intensive institute that prepares participants to implement the program. On-site or off-site training and follow-up sessions are tailored to meet the needs of individual schools or districts. Training is geared toward groups or teams made up of administrators, teachers, science coordinators, parent involvement coordinators, staff developers, and curriculum developers.

Review Summary

Evidence of Effectiveness: Good

Evaluative data came from several sources. There were both longitudinal and cross-sectional studies of children, teachers, and parents in 2 separate evaluation studies conducted in as many as 6 different sites. Data gathered included attitudes of children, problem-solving behaviors of children, and feedback from teachers and parents.

During the national pilot of ***Playtime is Science***, a research study on outcomes for children was conducted. The study was carried out for 2 years in a small upstate New York town (with kindergarten and first-grade students) and for 1 year in a midwestern city (with kindergarten only). At each site, the ***Playtime is Science*** school was matched with a school serving a comparable population. The research protocol included interviews with students at the beginning and end of the school year, and a series of 3 hands-on activities that were different from the ***Playtime is Science*** activities. Data were collected from a total of 114 ***Playtime*** students and 45 control students at the kindergarten level, and 55 first-grade ***Playtime*** students and 19 control students.

Limitations: Although ***Playtime is Science*** students were expected to exhibit more positive attitudes towards science, the results were mixed. This may be partly a function of the difficulties in attitude assessment of young children. The evidence for Claim number 1 was deemed inadequate to demonstrate attribution because of small samples, mixed results, and lack of control for selection bias. Claim numbers 2 and 3 are supported. Therefore, a rating of good, but not excellent, was given for Evidence of Effectiveness.

Claim	Evidence
1. Provide "hands-on" physical science activities for children in PreK to grade 3 that will: ● foster problem-solving skills; and ● foster positive attitudes among underserved groups, especially all girls.	● In one study, ***Playtime is Science*** students gave better and more numerous reasons and logical definitions than the control group. ● More girls who have participated in the ***Playtime is Science*** Program say they "do" science and know people who "do" science than girls in control groups (in a 2-year study at 2 sites). Gaps in gender differences in ***Playtime Is Science*** students who say they do science at home were nearly eliminated, whereas the gender differences in the control group increased.
2. Increase the number and diversity of science activities presented by teachers in the early grades.	● Fifty-seven teachers from several sites reported increased numbers and variety of science activities after involvement in ***Playtime is Science***.
3. Involve parents in the school and in doing science at home with their children (pointing out science connections/content in the real world).	● ***Playtime is Science*** students reported doing more science at home than control groups. Parental participation increased over time in several of the sites that were studied. Some centers offer monthly training sessions for parents. Some parents became mentors to new parent leaders. The percentage of teachers who reported parent-training activities outside of class increased dramatically.

Quality: Excellent

Playtime is Science is grounded in the theory and practice of child development, and provides successful opportunities for parents and teachers to [illegible] important [illegible] thinking [illegible] at the primary level of education. All program materials are imbued with principles of equity. Statistics about [illegible] are provided, and there is recognition of the need to develop in all students the positive attitudes and [illegible] and technology [illegible] gender, race, ethnicity, disability, or level of [illegible].

Playtime is Science is based on current science standards and [illegible] approach [illegible] ing [illegible]. Activities [illegible] allow all students [illegible] flexible activities [illegible] Children Sort for Legs, Creating A Monster, Bottle [illegible] Floating with Wonderful Junk, have proved to be [illegible] prute-learning experiences. The hands-on activities employ scientific methods [illegible] of the curriculum. Each activity card includes suggestions for relating the activity to [illegible] math, language arts, and social studies lessons.

Equity is an integral [illegible] *Playtime is Science* and is addressed in [illegible] of the program and materials.

- The Facilitator's Notebook contains entries such as "Where Does Inequity Begin?" and a unit entitled "12 Things to Know" which [illegible] about underrepresentation and stresses the importance of [illegible] mathematics education and competence. [illegible] activities, handouts [illegible] Underrepresented in Science and Families," such as "Exploring Science with Young Children" and "Are You Turning Female and Minority Students Away from Science?"
- [illegible] four-sided [illegible]

ideas," and "strategies." An early evaluation indicated an increase in teachers' [illegible] encouragement of children from underrepresented groups.

- The Leader's Guide for [illegible] Underrepresentation in Science [illegible] Who Is a Scientist?" "Science Is Everywhere," and "Science Is Fun." Concerns about [illegible] and [illegible] are addressed [illegible] parents [illegible] activities.
- The program video, Science for All Children [illegible]

Playtime is Science [illegible] [illegible] Educational Equity Concepts is conducting [illegible] Science for Children with Disabilities (funded by the National Science Foundation) and plans to [illegible] modifications to the activities accordingly.

Usefulness/Replicability: Excellent

This program can be implemented with very little funding. Costs of materials are kept deliberately low by using "found" or very inexpensive items. ***Playtime is Science*** has been adapted and replicated successfully in numerous settings, including public schools, bilingual programs, Head Start, Even Start, day-care/family day-care programs, and in community-based

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settings in Michigan; New York City; New York state; Kansas City, Missouri; and Tahlequah, Oklahoma (Cherokee Nation). It is essential that an on-site person receives training and takes responsibility for the program. It may be an administrator, teacher, or parent, but that person must be responsible for training new people in how to keep the program active. In Kansas City, for example, a parent-activist trained an incoming group of parents when her own children were moving on to another school. In New York City, parents in several districts introduced the program to incoming parents over a period of several years. EEC is available to provide ongoing technical assistance to sites that have institutionalized the program.

The Federal Desegregation Assistance Centers (DACs) were involved in the national pilot of ***Playtime is Science*** as disseminators of the program. The DAC in U.S. Department of Education Region V has incorporated ***Playtime is Science*** into its annual training conferences, funded by the Eisenhower Program. Consequently, over 100 sites are using ***Playtime is Science***. DACs in U.S. Department of Education Regions VI, VII, IX, and X also incorporate the program into services regularly provided to schools and school districts. Through the DACs, ***Playtime is Science*** has expanded to include preschool classrooms in Las Vegas; the Muscatine, Iowa School District; and schools in Wisconsin. It is also being used in Costa Rica.

Educational Significance: Excellent

This program incorporates principles of learning and teaching supported in the research literature and advocated by the national standards for science education. Additionally, it integrates gender and cultural diversity into early childhood science programs and educates parents about equity. ***Playtime is Science*** has shown a real, positive impact on increasing an interest in science among girls. This program targets young children and their parents, and is eligible for funding from Title I. It is unique in its emphasis upon addressing diversity and gender in a quality science program.

Prevention of Violence and Sexual and Racial Harassment in Higher Education

Summary Reviews of Promising Programs

PROMISING

Campus Peer Training Project

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Program Description

The National Coalition Building Institute (NCBI) has developed a Train-the-Trainer prevention and intervention program on 65 college campuses to respond to racism, sexism, and other prejudicial behavior and intergroup conflict. Over a 3-day period, NCBI first trains a team of 30–70 students, faculty, administrators, and support staff, who then become the institution's resource team, and are responsible for leading prejudice reduction workshops in dormitories, student organizations, faculty meetings, student orientations, residence life, and staff meetings. The primary objective of the NCBI campus-affiliate program is to build, through campus-wide workshops, an internal mechanism for moving beyond "quick fix" responses to racial/gender tensions and to foster instead a climate that welcomes diversity. Each NCBI-trained campus resource team meets monthly for ongoing support, supervision, and training. A major goal of this intensive follow up is to reinforce the prejudice reduction leadership skills taught in the initial 3-day training. Regular practice and follow up sessions assist every trained NCBI leader to function as an agent for change on their campus.

Target Populations

There are NCBI teams on 65 different college campuses, and approximately 100,000 students have participated in the program. Included in the target population are college students ranging from freshmen to graduate level, students in Greek associations, those in athletics, students with disabilities, gays and lesbians, and all groups identified by race, religion, gender, and sexual orientation. Faculty, support staff, and campus police have also been involved.

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Cost

NCBI staff provides the initial train-the-trainer program for each campus. Participation and costs are negotiated and range from $5,000 to $9,500, depending upon whether one or two NCBI trainers are employed. Following the initial session, students, faculty, and staff from the campus community "take over" and lead the work of crisis intervention, convening dialogues, and/or implementing workshops. NCBI states that anyone can successfully lead the workshops after participating in the 3-day training program. Effective teams require part time, ongoing support from one local staff person.

Additional Resources

NCBI works closely with each campus to implement the project and to launch the 3-day train-the-trainer seminar. It is establishing a Campus Center at Columbia University. The Center is adding the following components to the program:

- Intervention teams to handle tough conflicts on campus.
- National Leadership Clinics to train college administrators to handle intergroup conflicts.
- Service learning program for students to work in their communities to prevent violence.
- Campus constituency group training to combat internalized oppression within and among organizations, such as women's and African Heritage centers.
- Research and evaluation of the program.

Review Summary

Evidence of Effectiveness: Good

Evidence was submitted from three colleges/universities referred to below as Institutions 1, 2, and 3. Institution 1 reported results over a 2-year period (1996–97) from 132 responses to a questionnaire and from small group discussions. Institution 2 submitted 4 years of results from 486 students who completed the NCBI Prejudice Reduction Workshop Evaluation Form. Institution 3 was in the process of conducting an extensive evaluation and provided the strongest evidence of outcomes, although it contained only the first year's results (1996).

The claims and evidence below were compiled by panelists from reports from all three institutions and from reviewers' comments. The reported results from Institutions 1 and 2 came from questionnaires administered at the time of the workshops. Institution 3 administered their 34-item questionnaire twice: once at the time of the workshops and again after a month. They also conducted interviews with selected individuals one month following the training.

The Panel felt that the evidence to support the claims had many positive aspects. This was particularly commendable in an area like intergroup relations, where it is often difficult to measure improvement that results from an intervention. The inclusion of studies from several universities was seen as a definite strength, and the results to support the claims from the various sites and evaluations were generally congruent. The claims and supporting evidence met the Panel's criteria for a "good" rating. In order to award an "excellent" rating, the Panel would expect stronger claims and supporting evidence of effectiveness, as well as increased consistency of the data collection and results across these three and other sites. It noted that the claims were based on self-reports from the student participants and not corroborated by observers or other evidence. Also, since the evaluation designs contained no systematic comparisons over years or with other related programs, there was little to assure the Panel that the reported changes were the result of the intervention, rather than selection bias or other factors. NCBI demonstrated its commitment to documenting evidence of systemic change in its campus program, by hiring a national evaluation team to evaluate the longitudinal effectiveness of the train-the-trainer program.

Claim	Evidence
1. Workshop participants increased their awareness of the common characteristics and values that are shared by different groups.	• Evidence based on questionnaires and interviews submitted by all three institutions clearly demonstrates that workshop participants gain increased awareness of common characteristics and values shared by different groups. Because different instruments are used, it is not possible to aggregate the results, but the obvious impact on the participants at each campus is compelling. • Two-thirds of the participants at Institution 1 and one-half of the participants at Institution 2 indicated that they had gained an awareness of common characteristics and an understanding of differences. Participants at Institution 3 who completed the questionnaire 1 month later rated "understanding diversity issues better now" at 4.2 on a scale of 1–5. • Over 80 percent of the participants at Institution 2 who completed the NCBI Prejudice Reduction form indicated that they gained an appreciation for the many kinds of diversity: race, gender, ethnicity, socioeconomic, disability, age, sexual orientation, and so forth.
2. Workshop participants increased their commitment to change their own responses to prejudiced and stereotypical behavior and to actively oppose such behaviors in others.	• Participants on all three campuses evidenced intent to change their responses to prejudiced or stereotypical behavior present in people or groups with whom they interact and to oppose such perspectives actively. • At Institution 1, 85 percent of the participants indicated they would use the information for both their own self-awareness and to "spread the word." • At Institution 2, participants indicated that the workshop objectives had been reached and that they would be helpful at work. • At Institution 3, the workshops were shown to be particularly strong in increasing participants' "commitment to diversity action."
3. Workshops provided participants with the skills needed to respond to prejudiced or stereotypical behavior.	• While the workshops include a segment on skills helpful in responding to prejudiced or stereotypical behavior, there is only a weak pattern of support, especially in regard to reporting actual changes in behavior, as a result of the workshop. • The only fitting indicator at Institution 1 showed 10 percent of the respondents reported that the workshops helped their communication skills with other groups. • At Institution 2, 50 percent of the respondents reported that they gained useful skills; 65 percent indicated they were more likely to use the skills; and 86 percent said they learned how other groups experienced mistreatment (which should be valuable in their efforts to oppose such mistreatment). • Information on how and if the skills are applied is weak. There is no evidence of application of skills from Institutions 1 and 2 and very little evidence of changed behavior in Institution 3 on the post-test survey conducted a month after the workshop. According to the report, "the results on impact of the workshop on participants appear to be very positive. Participants say they are changed as a result of the training, and that changes in thoughts, and to some extent feelings, hold up over time. However, there was little evidence of overt behavior changes over the course of a month after the training. For example, although participants generally felt positive about their efforts to interrupt prejudice, they also rated their efforts as relatively feeble and passive. Simply put, changing attitudes is easier than changing behaviors."

Quality: Excellent

NCBI's program was ranked high in overall quality. It was commended for its freedom from bias and stereotypes and for its strong foundation in and use of both a peer education and an empowerment model. It revealed itself to be engaging and readily utilized within a variety of settings, and it was carefully organized and well written. While the leaders believe the primary focus of the program to be racism, they also have a commitment to "visible and invisible" differences, such as nationality, race, ethnicity, gender, sexual orientation, religious affiliation, disability status, age, and socioeconomic class.

NCBI follows the diversity guidelines of the institution to which it is under contract. Thus, it is up to date and accurate to the degree that the particular institution is in compliance with current law. NCBI also works with the institution's staff to resolve any issues of potential noncompliance.

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Usefulness/Replicability: Excellent

While many workshops that address diversity on campuses exist, NCBI is the only known organization that has built a model, replicated it on 65 campuses, and tested it extensively. Reviewers agreed that the program was described in a tangible way that others could use. It has a flexible design, with core tools that are easily adapted to individual campuses. The large number of colleges and universities presently using it provides evidence of its usefulness.

Although the cost may seem formidable at first glance, the 3-day Train-the-Trainer model takes advantage of the multiplier effect by training large numbers of campus volunteers who can then work with a large percentage of the campus population. Ultimately, it is a very cost-effective program (one institution calculated the cost to be about $5.50 per participant). In addition, NCBI works with institutions on strategies for finding support. Increasingly, campuses have funds budgeted for diversity programs, and in many locales, additional external support is available for these kinds of efforts.

The Prejudice Reduction Workshop Model is available in Braille and NCBI provides interpreters for workshops when there are hearing impaired participants. It also ensures that all workshops are in wheelchair accessible facilities and that TTYs are available.

NCBI provides ongoing support to campus affiliate chapters via an Internet listserv, an annual conference of affiliates, monthly consultation calls from the Director of Campus program, and help with joint programs that involve the local community. As its name implies, NCBI facilitates coalition-building as well as peer education. It sustains its relationship with each campus affiliate beyond the initial training period; one institution's report showed it had been affiliated with NCBI since 1992.

Educational Significance: Excellent

Finding effective ways of changing attitudes and behavior has long been a challenge to educators. By drawing from proven methods of community organizing, behavior change, and social justice models, NCBI has built a very strong and effective training model. The process it uses builds coalitions between groups and integrates principles of conflict resolution and mediation, giving workshop participants the opportunity to discover new attitudes and practice new behaviors. Diverse audiences of participants and a diverse group of trainers are sought, including those with various disabilities. Reviewers and panelists agreed that this program looks beyond the "quick fix." It endeavors to establish and maintain long-term affiliate programs in diversity issues and conflict resolution in a variety of academic settings from 2-year commuter schools, to private 4-year colleges and universities, to medical and dental graduate schools.

PROMISING

The Program on Intergroup Relations, Conflict and Community (IGRCC)

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Program Description

For more than 10 years, the University of Michigan's Ann Arbor Program on Intergroup Relations, Conflict and Community (IGRCC) has served as an initiative to heighten sensitivity to and awareness of diversity among undergraduate students. IGRCC helps students explore the relationship between social conflict, community, and social justice, and provides opportunities for students to improve their leadership skills in responding to intergroup conflict and divisions within their own university community.

IGRCC faculty conceived of the program as an academic initiative fully integrated with student life. Formal academic coursework and personal experience provide the basis for structured conversations/intergroup dialogues across racial, ethnic, and other social group boundaries, with the goal of equipping students with both the academic background and social expertise for informed participation and leadership in a diverse democracy. The program includes attention to some gender issues as part of intergroup relationships.

Core Components of IGRCC (see the Web site for details):

First-Year Seminars. Each year about 10 first-year seminars are offered in a variety of academic departments. These seminars comprise a First-year Interest Group (FIG) in which students participate in a common set of out-of-classroom experiences designed to build communities of students that extend beyond individual seminars.

Intergroup Dialogues. These two-credit dialogues are the primary focus of IGRCC and its most innovative contribution to intergroup education. Students from two social identity groups meet for 2 hours a week over the course of a semester. Co-facilitated by peers representing each of the groups, the dialogues integrate readings, discussion, and experiential exercises.

Facilitator Training and Practicum Courses. Prior to facilitating an intergroup dialogue, facilitators engage in intensive training. While leading dialogues, facilitators take a supervision and practicum course.

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Training Course for University Residence Hall Staff. IGRCC and the Psychology Department offer Psychology 404 (Social Psychology in Community Settings) in conjunction with University Housing Residence Education. This course, offered in the winter semester, is designed to prepare prospective student staff to promote multicultural community development in their residence halls.

Advanced Courses on Intergroup Relations. Students may take additional upper-division courses on intergroup relations topics in a variety of university departments.

Consultation and Workshops. IGRCC works in collaboration with other university departments and units to sponsor one-time workshops, training programs for student staff and organizations, and special campus events.

Resource Center on Intergroup Relations. The resource center houses several hundred books; 2,000 articles; and various videos on topics such as race, gender, ethnicity, sexual orientation, disability, class, religion, pedagogy, and group work. Faculty, staff, and students are welcome to use any of these materials.

Target Populations

IGRCC targets undergraduate and graduate students of both sexes who possess different abilities/disabilities and come from different racial and ethnic groups, sexual orientations, religions, and social classes. Approximately 10,000 students at the University of Michigan, Ann Arbor, were involved in the program between 1988 and 1999. The program has been adapted and used at the University of Illinois, Arizona State University, the University of Massachusetts/Amherst, and the University of Washington with students in many fields, including liberal arts studies, social work, and education. Additional colleges and universities have consulted with IGRCC staff about adapting the program on their campuses.

Cost

The costs of the program include training and supervision, coordination and teaching of intergroup dialogues, first-year seminars and other courses, program administration, and other program workshops and activities. At the University of Michigan, funding comes from the College of Literature, Science, and the Arts and the Division of Student Affairs. IGRCC was awarded a 2-year grant from the "Pluralism and Unity" program of the William and Flora Hewlett Foundation.

Additional Resources

IGRCC staff and faculty are available for consultation with other colleges and universities interested in developing similar programs. In 1997, the developers at the University of Michigan hosted the "First National Conference on Intergroup Dialogue on the College Campus," which brought together participants from approximately 30 institutions that had expressed interest in the IGRCC program and in intergroup dialogue programs generally. Numerous books and articles on intergroup relations published by program faculty and staff are listed on the IGRCC Web site. IGRCC, like all University of Michigan programs, works with University of Michigan Services for Students with Disabilities to ensure that all students have access to courses and programs.

Review Summary

Evidence of Effectiveness: Good

The Panel felt it was important that there were claims of positive impact on student learning and development related to conflict management skills, as well as increased student understanding related to explanations of social causation. While it is difficult to demonstrate cause and effect relationships for changes in these areas from a specific intervention such as IGRCC, the Panel felt there was enough evidence to support Claims 1 and 2 about student improvement as listed below. They also found sufficient evidence to support the claims of increased student, faculty, and institutional commitment to IGRCC in and outside the University of Michigan. This evidence of implementation contributed to the Panel's rating of "excellent" on the usefulness/replicability criterion.

In order to rate the evidence of IGRCC's positive impact on students as "excellent" rather than "good," the Panel needed more extensive and robust evidence. In order to be convinced that components specific to IGRCC contributed to the results, the Panel needed to see:

- More information on the nature of the intervention, particularly at the adaptation sites, along with evidence from these sites to support the claims that the results were attributed to IGRCC. For example, the Panel would have expected evidence for Claims 1 and 2 to be clearly tied to participation in the program. Other potential explanations, such as selection bias and the use of the assessment process itself (which might have contributed to positive changes in student self-reported results), would need to be eliminated.
- Additional well-supported claims about the positive impact on relevant behaviors of the teacher/leaders and student participants, as well as overall changes on other campus indicators, need to be shown as attributable to IGRCC.
- Consistency in results over time and in different sites using the same instruments/indicators.
- Evidence about IGRCC's superiority to other programs with similar goals and details about which students are best served by the program. For example, is IGRCC particularly effective with white or disabled students who have come from primarily segregated environments? Is it equally effective with males and females, graduate and undergraduate students, and so forth?

For more information on IGRCC studies, see the IGRCC Web Site and Schoem, David. 1997. "Intergroup Relations, Conflict and Community" in ***Democratic Education in an Age of Difference***, Richard Guarasci and Grant Cornwell (ed). San Francisco: Jossey-Bass.

Claim	Evidence
1. Positive impact on student learning and development related to conflict management skills.	• Self-report by students at the end of the program indicates increased awareness, sensitivity, understanding, and conflict management skills.
2. Shift in student understanding about conflict and social causation explanations.	• Pre- and post-assessment of student discussion of the causes and solutions for problems by students in program and control groups. Students in the program show significant shifts in their explanations of social causation. At the beginning, students responded to case studies with individualistic causal explanations, but by the end, they favored social causation explanations. Results were similar for both white students and students of color; however, there was no discussion of whether the results were also similar according to sex and disability. Both studies that supported this claim were conducted at the University of Michigan. • A study from Arizona State University (ASU) found that taking a multicultural course in conjunction with the intergroup dialogue program produces greater cognitive and affective outcomes than taking a multicultural course alone. Similar results were found in a study at the University of Michigan.
3. Increased faculty interest and participation.	• In a 2-year study, increased numbers of faculty participating in the program were measured. Faculty and student researcher involvement in at least four other universities also increased.
4. Increased student interest and participation in the program.	• Over a 2-year interval, the number of students participating in the program rose from 500 to 1,000 at the University of Michigan. • At Arizona State University, students who participated in 6-week dialogues wanted to continue longer and felt that the program should be required for all students.
5. Institutional and external recognition of importance of project.	• Several internal University of Michigan awards and letters were cited. In addition to requests for information, external sources of recognition include funding from foundations.
6. Success in infusing IGRCC into both academic and social life of students.	• Evidence of coordination and shared funding of IGRCC from the Dean of Students and academic funds was found. Extended training of residence hall staff is required at the University of Michigan. Students' self-reports of increased leadership roles in a variety of settings and conflict situations at the University of Michigan suggests that IGRCC students develop a greater commitment to cultural diversity and social justice.

Quality: Very Good

The reviewers rate this program high in terms of quality. Not only does IGRCC provide a link between current theory and practice, including the latest educational theories on building intentional learning communities, but the research stemming from this program has helped forge new theory. In addition, IGRCC's components are explicitly linked to equity concepts at attempts to eliminate stereotypes and foster respect within the campus community. The program is clearly based on a philosophy of intergroup understanding, respect, and conflict management across racial, ethnic, and other group differences. The Panel had some difficulty understanding the key replicable components of the program and even how it was [illegible] the University of Michigan. [illegible] well-organized and [illegible] Several of the [illegible] ty are working on [illegible] group dialogue and [illegible] practice in various settings. Although the Gender Equity Expert Panel noted the absence of gender [illegible] of the results it was pleased that gender equity issues were covered in the logues and courses. Disability-related content and discussion of intergroup relations around issues of disabilities were also addressed in workshops and courses.

Usefulness/Replicability: Excellent

In addition to its documented increased use over time at the University of Michigan, Ann Arbor, there are various indicators that IGRCC is useful and replicable at other institutions of higher education. For example, parts of the program have been adapted for other universities by staff who had previously worked with IGRCC at the University of Michigan, and by others who participated in the 1997 conference. Because it incorporates substance and methods of intergroup relations into traditional course offerings, this program is suitable for most academic settings.

While the program in its entirety requires substantial cost and cooperation from various institutional departments, components of the program may stand alone or be altered to fit different institutional sizes and budgets. Thus, the benefits and versatility of the program make it affordable for both the institutions and their students. For example, college credits may be available for many components of IGRCC.

In addition to increased participation over the years at the University of Michigan, IGRCC has been valued in other states. Some of this evidence is described in the claims and evidence section. IGRCC reports frequent calls from other universities for consultation and support in developing similar programs. The willingness of the program directors to consult with other institutions that desire to develop similar programs contributes to the program's overall success. The program's long-term implementation success at the University of Michigan, Ann Arbor, may be attributed in part to the fiscal support it enjoys from several campus departments and offices, and the commitment of academic, student life, and campus administrators to the program. This support collaboration may be a constraint for some adapters since it is sometimes difficult to obtain cooperation from various institutional departments, and running such a systemic effort requires strong leadership.

Educational Significance: Excellent

IGRCC is based on sound theory, has a long history of use, and is clearly linked to the mission of a liberal arts education. It draws from various theories and models in conflict resolution, service learning, psychology, sociology, and the humanities. In addition, it uses multiple approaches for intergroup relations to create a learning community and has displayed leadership in higher education by organizing a conference (1997) and promoting research. At the University of Michigan, IGRCC fosters collaboration between academic and student affairs. It also successfully combines various approaches to cultural transformation models, bringing together divergent groups. The program emphasizes enhancing student understanding of intergroup relations, primarily in regard to differences across race and ethnicity, but it also addresses the relationship between males and females and appears to be held in high esteem by many colleagues working in the area of intergroup relations.

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Gender Equity in Teacher Education and Professional Development

Summary Reviews of Promising Programs

PROMISING

Succeeding at Fairness: Effective Teaching for All Students

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Program Description

The purpose of this inservice training program is to increase the effectiveness and equity of classroom teaching. Based on research studies conducted in classrooms from grade school through graduate school, the program is designed as a flexible, 3-day, tiered training experience—a design that reflects the time and resource realities of schools. The goals of the program are: (1) to foster an understanding of the nature and findings of gender equity related research; (2) to draw connections between the research on teacher effectiveness and equity; (3) to show teachers how to code classroom behavior; (4) to implement effective and equitable teaching skills; (5) to empower teachers through peer coaching; and (6) to promote teacher empowerment through independently developed equity projects.

Target Populations

The target population includes elementary/secondary classroom teachers, postsecondary faculty, educational administrators, and youth leaders in organizations such as the Girl Scouts, Boys and Girls Clubs, and Girls Count.

Cost

The cost of the program is figured on a per site basis and varies according to the partnering agency's needs and budget. Costs are based on a variety of factors, including time, size and the nature of the group, special event services (media interviews, award presentations, planning and development meetings, for example), and other considerations. Fees for services are within the general range of consulting and training fees, given the expertise and experience of the trainers.

Program materials include a student or instructor's handout packet of 15–20 pages, possibly including local materials that may be duplicated at the client's site; three recommended videotapes, including "Dateline" (parts 1 and 2), for a total cost of less than $70; and a videotape of classroom scenes for coding practice. NAK Productions has one such tape available for $95, but other videotaped classroom scenes may be substituted.

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Scenes selected for coding practice depend on the facilitator's choice and the particular audience. The book *Failing at Fairness*, by Myra and David Sadker is available through bookstores and the publisher, Touchstone Press. Although the number of workshop materials chosen for use may vary according to local site funding, the program can be conducted with minimal expense (mainly for duplication of participant materials). Additional information on obtaining course resources is on the American University Web Site.

Additional Resources

Related activities and resource links are found on the Myra Sadker Advocates Web Site: www.sadker.org.

Review Summary

Evidence of Effectiveness: Good

A wide variety of evidence suggests that claims of positive results are consistently associated with the use of this intervention. Much of this evidence is documented in letters from staff across the nation who helped implement this program in their organizations. This evidence comes from research conducted at a state technical education office, universities, equity resource centers, and state departments of education, as well as from anecdotal evidence gathered at many other sites.

- The goal of "fostering an understanding of the nature and findings of gender related research" is specifically documented by a number of participants, including the state offices of education and independent and public school sites.
- The goal of "drawing connections between research on teacher effectiveness and equity" is attested to in data gathered from a number of participants, including the National Education Association (NEA). One hundred and fifty NEA members across the nation reported that they returned to their school districts with "a clearer sense of classroom interactions that can result in inequitable learning among students" and an awareness that "their own actions often contribute to this inequity." The specific ways in which these connections are made are detailed in the submission itself.
- The skill of "learning how to code classroom behavior" is taught at the workshop. The instrument and instructions are included in the program materials. Many sites affirm that their participants have indeed been taught to code behavior. Others report that teachers are using the instrument to observe each other in classroom situations in order to become more aware of their own behaviors and to modify them.
- Regarding the goal of "implementing more effective and equitable teaching skills," one study found that trained teachers interacted more equitably with male and female students in situations involving praise, remediation, and acceptance, though they continued to criticize males more than females. Secondary school teachers without training interacted more frequently with male students than with female students in all four interactions than trained teachers did. A second study observed teachers before and after training and found that the workshop clearly resulted in an increase in the number of quality interactions. Critical reactions again remained unchanged. Information from one university program asserts that at least one teacher who was trained in equitable behavior had been observed by another trained teacher to be using equity techniques successfully. Other trainees attest to becoming more equitable in their classroom interactions as a result of using the coding instrument and modifying their own behavior.
- The goal of "empowering teachers through peer coaching" was given a favorable review by the NEA, which reported that many of their 150 trainees had organized peer training sessions to teach coding techniques for measuring the degree of gender equity in the classroom.

The director of a university graduate teacher program has been training 40 advanced graduate teachers each year to be gender equitable in part by using the peer coaching strategy. An independent school used peer coaching to help their teachers become more gender equitable.

- The goal of "promoting empowerment through independently developed equity projects" has been accomplished in numerous sites, including states, universities, and national agencies. A state cooperative education services department and department of technical education listed multiple ways in which trainees have gone on to train others. NEA claims that post-workshop trainee evaluations have reflected a willingness to either conduct local inservice training themselves or to call on NEA for support in organizing local training. The director of a graduate teacher program at a university has done four work shops per year for 10 years at other colleges and universities, the American Association of University Women, and public schools in her area.

As often happens with evidence that is collected more opportunistically than systematically over a number of years, there are some problems with the data. For instance, evaluation forms only asked for good results and did not request details about what was not so useful or good. Additionally, some of the data would have been more useful if it included median or mode statistics, not just means. Further, it would have helped to know what percent of the participants initially enrolled in workshops and actually completed the training and/or the evaluation forms since these omissions could result in a positive bias. It would help if future evaluations included independent verification of later activity by workshop attendees and baseline data on initial behavior, knowledge, or plans. The evaluations didn't obtain evidence to show that "Succeeding at Fairness" increased classroom effectiveness or equity, thus no claims were made for this goal.

Despite these weaknesses, evidence from multiple sites attests to the prevalence of positive results related to this program. A summary of specific claims with examples of supporting evidence follows.

Claim	Evidence
1. Promotes an understanding of the nature and findings of gender-related research.	• Sites in two states indicated that the teachers knew more about gender equity in education after participating in the training, as indicated by their ability to recognize subtle bias and stereotyping in class discussions at the end of the training.
2. Helps teachers understand that they can increase equity in their classroom interactions (which in turn will probably increase equitable learning among students).	• After participating in this 3-day program, 150 NEA members from 49 states reported an increased understanding of how they and their colleagues contribute to inequities in classroom interactions. These results held for each of the three local and state NEA leader groups who participated in the program over the past 3 years.
3. Enables teachers in the program to code classroom behavior—their own, that of other teachers, and student interaction patterns—for gender equity.	• All the training sessions included pre- and post-exercises in coding classroom interaction. Results showed that the trainees were able to code behavior with some reliability toward the end of the training. Many of the NEA trainees organized peer training sessions to teach coding. In fact, one teacher taught his students and his daughters to code classroom actions.
4. After training, trainees used more gender equitable interaction patterns than teachers without the training; in some cases, they reported improvement in their own interaction patterns as a result of the training.	• One state study indicated that teachers with training interacted more equitably with male and female students in situations involving praise, remediation, or acceptance, though they continued to criticize males more than females. Secondary school teachers who had not had the training interacted with male students more frequently than female students in all four types of interactions than trained teachers did. • A study in another state found that the training resulted in an increase in the number of quality interactions, although critical reactions again remained unchanged. • Information from one university states that at least one trainee had been observed by another trainee to be teaching more equitably than before. Additional trainees (including graduate teaching assistants) attest to becoming more equitable in their classroom interactions as a result of using the coding instrument and modifying their own behavior. They took part in an adapted version of the program given by an equity coordinator who had participated in an earlier training session.
5. Increases teacher empowerment through peer coaching in coding classroom interactions, and through replicating all or parts of the training program with others.	• Trainees from various sites used peer coaching strategies to teach how to code & gender equity in classroom interactions and become more gender equitable. Other trainees have conducted other types of inservice training in gender equity and helped others do so as well. For example, in 1996–97, 20 trainees led 30 gender equity workshops for university faculty and staff. Some gender equity activities were reported by these second generation trainees.

Quality: Excellent

The program is clearly congruent with sound research and practice. A particular strength is that its developers conducted considerable research prior to developing the program and continued to conduct research on various aspects of program implementation. The information is current and resources are of high quality. It appears that the program is extremely engaging and motivating. There is some evidence that other diversity issues, such as race/ethnicity and disability are discussed.

Usefulness/Replicability: Very Good

The program appears to be readily available to potential users at a cost that has some flexibility. It also appears to be fairly flexible with respect to both length and content. Program implementation by those who have taken the workshop, either in part or in whole, is encouraged by the developer. Evidence from multiple sources shows that such implementation has indeed occurred since many people who have been trained in the workshops subsequently go on to provide various levels and kinds of gender equity training for others in education, including everything from regional workshops for teachers, to gender equity coding training for students. However, most of the positive results were reported when the developers were also the trainers, thus the replicability of positive impact with other trainers needs to be documented.

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Educational Significance: Excellent

The program clearly provides a well-documented, practical mechanism for not only raising the awareness of educators but also moving them toward behavioral change. It has been in existence for more than two decades and has been successfully implemented in multiple, diverse locations and types of institutions. It has a wide variety of evidence to support its success from many sites, including states, national agencies, universities, and colleges. Thousands of people have been recipients of the training. It is difficult to say how many more have been indirectly affected. It would appear to be, therefore, one of the most significant gender equity training programs presently in existence.

PROMISING

A Woman's Place . . . is in the Curriculum, National Women's History Project

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Program Description

This 5-day teacher training conference on women's history has been developed and is generally conducted by the staff of the National Women's History Project (NWHP). Participants from K–12 school districts across the country come together to learn about the achievements and contributions to U.S. history made by women from all cultural and racial groups and social classes. Guest lecturers representative of the main minority ethnic groups in the United States (African-American, Latina, Native American, Asian-American) present their issues and perspectives to conference participants. Pedagogical strategies and new resources are infused into the training. Participants learn to incorporate multicultural women's history into all subjects from elementary school level to college; they are shown practical ways of using women's history in the curriculum to integrate issues of gender, race and ethnicity, and disability.

The goals of the training conference are:

- to demonstrate that the lives and actions of all people —the ordinary, as well as the extraordinary—are part of the shared history of the United States, and to bring the multicultural role of women into the curriculum;
- to present effective pedagogical strategies and methods for infusing multicultural women's history into all areas of the K–12 curriculum; and
- to introduce new and current multicultural women's history resources.

Directed by the Executive Director of the National Women's History Project, the training conference is usually conducted by the project's experienced staff, in conjunction with local equity specialists and guest lecturers representing cultural diversity. It takes place during the summer, usually in California, but has been replicated in three other states (South Dakota, New York, and Connecticut). Woman's Place Conference participants have come from 45 states and 4 countries. Related training activities have been conducted in over 40 states and continuing education units are available. The print and video materials listed in the NWHP catalogue include books, reports, and videotapes on women from diverse ethnic, racial, and cultural groups.

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Target Populations

This conference targets teachers, teacher educators, administrators, and curriculum supervisors in K–12 public and private schools throughout the United States and other countries.

Cost

The 1999 California training conference registration costs were $450 per person ($475 late registration), and included the 300-page conference manual in a binder, handouts, activities, up-to-date bibliographies, a selection of books, and 4 lunches. Travel, hotel, and most meals are not included. Dates and registration information for conferences is available in the NWHP catalogue and on the organization's Web site.

Additional Resources

The NWHP *Network News* is published quarterly, and a networking directory of members interested in women's history is also available. The NWHP catalogue contains an eclectic selection of women's history resources, including materials (both print and video) developed by the Project and available for purchase.

Review Summary

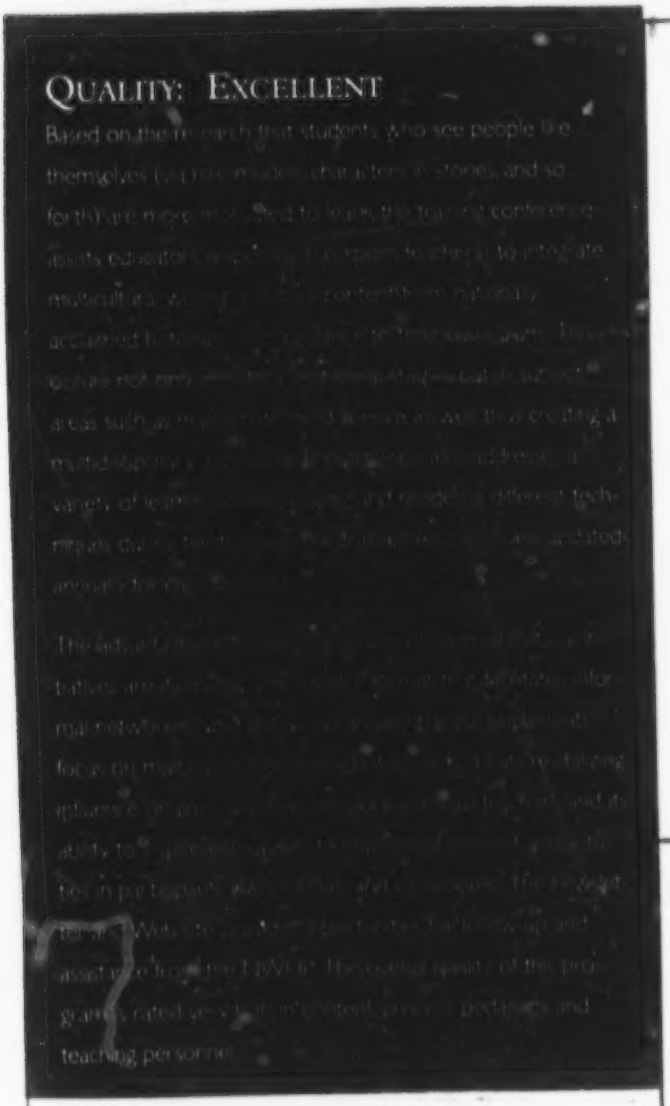
Evidence of Effectiveness: Good

This multicultural women's history training conference is unique in that it engages diverse racial/ethnic groups of both sexes and presents their history to the participants. Testimony from teachers about their subsequent use of what they learned is impressive. Participants have come from 45 states and 4 countries. Their target audiences include students, faculty, community members, and public and private school employees. This program has been conducted for over 15 years and continues to attract new participants, although outreach to even more potential attendees could be improved. Approximately 5–15 percent of participants are reported as people of color, and 90 percent as female. There are no numbers available for disabled participants.

The claims of positive impact on the teacher participants are supported by convincing evidence that the teachers used knowledge and skills they gained from the training conference to conduct their own women's history courses for their students. To rate ***A Woman's Place*** as excellent in its positive impact, the Panel would have required more extensive claims and evidence to indicate success for both the teacher participants and their students. For example, the Panel would have wanted indicators that showed increased understanding of multicultural roles of women in U.S. history as shown by increases in teacher and female and male students' knowledge, attitudes, and behaviors. Also, in addition to the current participant self-reports, the Panel would have wanted more corroborating evidence from many more of the sites and over time using common indicators. The Panel would also expect some evidence to convince them that the training (rather than the participants' prior knowledge and motivation) contributed to their positive results and that the training was as good as, or better than, other training with similar purposes.

Claim	Evidence
1. Participants bring the multicultural roles of women in United States history into their school's classes and curriculum.	• Participants report increased time spent on teaching women's history in the classroom. • Participants report enthusiastic student involvement in Women's History Month activities.
2. K–12 teachers are trained in strategies and methods for infusing multicultural women's history into all areas of the K–12 curriculum.	• Participants report developing and teaching a multicultural women's history elective course for high schools. One teacher indicated that three sections were filled. • Participants report developing activities using multicultural women's history for science and mathematics classes.
3. New and current multicultural women's history resources are infused into the K–12 curriculum.	• Participants report that materials received from the training conference are in high demand, circulating among teachers and students in their schools.

Quality: Excellent



Usefulness/Replicability: Excellent

Considering the length and value of the program, the registration fee is remarkably reasonable. Participants leave with an extensive number of materials to take back to the classroom. Because they are national in scope, the materials can be used successfully anywhere in the country. Copyright constraints are kept to a minimum.

The program could be made more useful to others by delivering it more frequently, and in places other than its home base in northern California. In fact, the conference has been conducted successfully in other sites—especially in collaboration with regional equity assistance centers (the former Desegregation Assistance Centers) and former Civil Rights Act Title IV state offices. In the latter case, training personnel offices worked with local gender equity and multicultural consultants; all training materials came from NWHP. Although it has been suggested that the program might lack the special and unique contribution of the NWHP staff when it is delivered at other sites, the use of local talent extends its replicability and increases the knowledge and expertise of the consultants.

Follow-up technical assistance is available from NWHP staff and through the NWHP Web Site. As demand created by the President's Commission on the Celebration of Women in American History (www.gsa.gov/staff/pa/whc.htm), and many other organizations increases, the NWHP may consider replicating its Woman's Place training in additional ways. Some ideas include an interactive Internet-based course and the development of certified trainers-of-trainers who can obtain positive results with many more teachers across the country than is possible with the current heavy reliance on NWHP staff.

Educational Significance: Excellent

This program addresses gender bias in the U.S. history curriculum by providing information and resources to counter women's invisibility, marginalization, and devaluation. Research shows that girls and young women need to see and read about women and their achievements in history and other subject areas. The impact of this program is not limited to social studies and history; it flows into literature, science, mathematics, and many other areas where role models of diverse women are used to encourage girls and to educate boys.

When properly implemented, a restructured, inclusive history curriculum can motivate students to learn more history. Students may also progress in understanding the totality of women's roles and achievements in many different cultures, jobs, classes, and ethnic backgrounds, and in recognizing some of the inhibiting barriers women have had, and still have, to overcome.

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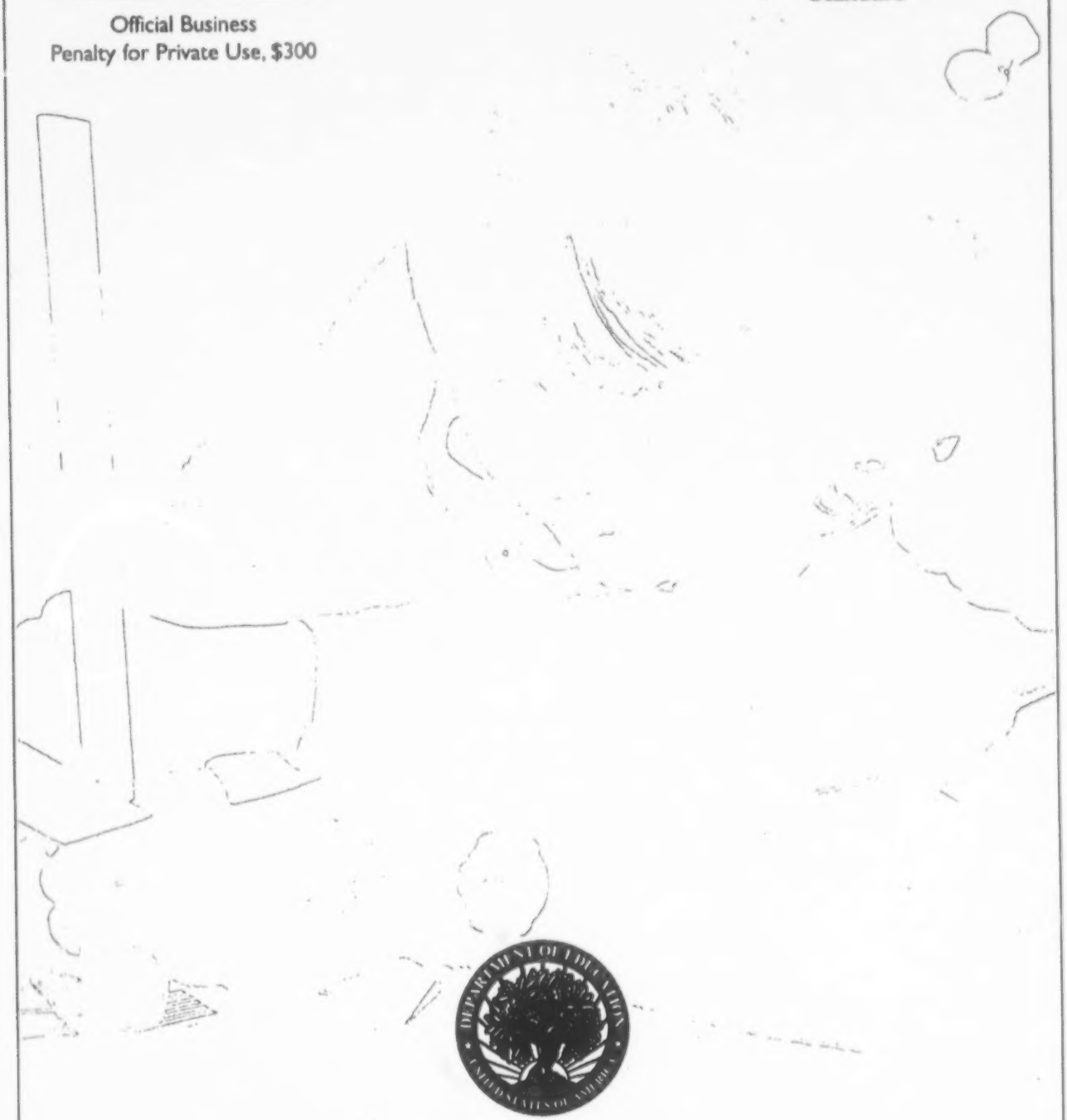

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